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HEADACHE FROM THE OTO-RHINOLOGICAL POINT OF VIEW.¹

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It is obvious to one working in ear, nose and throat clinics that a large percentage of sufferers seen is of the prominent aquiline nose type, the nose being laterally compressed. The architectural bony design of such noses spells obstruction to the nasal airway, such obstruction being usually accentuated by a disuse atrophy and collapse of the *ala nasi*. The ensemble, with its crowded middle

turbinates, inefficient drainage of the sinuses and poor ventilation, accounts for many of our sufferers from headache and points the way to later chronic suppurative lesions within the sinuses.

If the layman's description of the Australian physiognomy as aquiline be correct, it suggests at the same time the architecturally narrow nasal design aforementioned and with it an increase of nasal disorders to which our European forbears would have been less prone. There are those among us who feel that such an increase is evident in white Australians. Without data from the pens of anatomists on such possible congenital or acquired narrowing in our bony anatomy, one can only raise the question hoping for enlightenment from our learned academic circles.

A brief survey of the anatomy and distribution of the fifth or trigeminal nerve and of the spheno-

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on August 28, 1930.

palatine ganglion may help in an understanding of some of the pain arising from nasal affections.¹

Non-Suppurative Nasal Headache.

Sluder's publication, which is now a classic, subdivides these non-suppurative headaches into:

1. Headache due to closure of the frontal sinus without suppuration.
2. The syndrome of nasal ganglion neurosis.
3. Headache due to hyperplastic postethmoid sphenoiditis.
4. Anterior ethmoidal headache (naso-ciliary neuralgia).

Vacuum Frontal Headache.

Vacuum frontal headache is described as a low grade unending headache established by closure of the frontal sinus without nasal symptoms or signs, which is made worse by the use of the eyes. It is accompanied by the existence of a tender point in the upper inner angle of the orbit (Ewing's sign), that is just posterior and internal to the pulley of the superior oblique muscle. The mechanism by which closure is produced is a combination of unfavourable anatomical settings, such as narrow noses present, *plus* hyperplastic changes in the soft parts and bone. A normal duct may be encroached upon by an ethmoidal cell bulging into it. The lumen of the duct may be limited by a middle turbinate closely applied to the lateral nasal wall, a deviated septum, a large septal tubercle, a narrow nose, or by any acute swelling.

Once the sinus is closed the oxygen of the enclosed air is absorbed and a negative pressure, a partial vacuum, is established within the cavity, hence there results a congestion of the lining mucosa and, to some degree, of the bone. The headache is not relieved by glasses or eye treatment.

Nasal Ganglion Neurosis of Sluder.

The nasal ganglion neurosis of Sluder provides a syndrome believed to be due to inflammation of the ganglion, which lies just above and postero-external to the posterior end of the middle turbinate, in the sphenopalatine fossa. Sluder regards the nasal ganglion as being a sympathetic node whose fibres pass downward by way of the Vidian nerve and carotid plexus to the cervical sympathetic trunk, giving branches to the cervical nerves and proceeding finally to the lower cervical ganglion, which is often fused with the first thoracic. These ganglia are associated with the nerves supplying the neck and brachial plexus. Hence a lesion of the nasal ganglion explains not only the vasomotor-secretory phenomena in the nose, but also the pain referred to the neck, shoulder, arm *et cetera* and called a Vidian neuralgia.

Lying so closely to the posterior ethmoidal and sphenoidal cells (by actual measurement the ganglion lies one to nine millimetres from the nasal mucosa, but usually two or three millimetres), it

is reasonable to suppose that the ganglion can become involved by extension of any inflammatory process from the nose proper. There can be neuralgic and sympathetic syndromes. Starting with an acute coryza, pain, of the lower half headache type, is found from the root of the nose about the eye, the jaws and teeth and extending backward to the temple and about the zygoma to the ear, making earache emphasized at the mastoid, thence by way of the occiput and neck to the shoulder blades and shoulder, and in severe attacks to the finger tips.

The nasal symptoms may resemble those of an acute vasomotor-secretory type—a sympathetic syndrome often regarded as hay fever. Sluder holds that if cocainizing the nasal ganglion controls the symptoms, the diagnosis is established.

Hyperplastic Postethmoid Ethmoiditis.

Sluder also describes a headache of hyperplastic postethmoid sphenoiditis in which there is a thickening of the mucosa or polypi. The hyperplasia may involve the submucosa and underlying periosteum and bone. The headache is dull, heavy and situated in the occiput usually, but may be more extensive, depending on the nerve trunks involved. The optic nerve may be affected. The first and second divisions of the trigeminal nerve, if involved, may cause pain simulating antral and frontal sinus disease. The whole nasal ganglion may be included, in which case headache, typical of the neuralgia of the nasal ganglion, may be produced. There is this difference, however, that pain is not controlled by cocainizing the nasal ganglion, as the involvement is central to the nasal ganglion, that is, in the Vidian nerve trunk within the floor of the sphenoidal sinus, and hence the pain is a Vidian neuralgia.

Anterior Ethmoidal (Naso-Ciliary) Neuralgia.

The naso-ciliary nerve, as it enters the nose in its uppermost anterior limit, is quite near the surface of the mucosa, any inflammation of which in this part may irritate the nerve and produce pain. In true naso-ciliary neuralgia the pain can be controlled by application of cocaine to the nasal mucosa at the point of exit of the naso-ciliary nerve, where the anterior limit of the nasal fossa reaches the roof of the nose. This specific pain described by Sluder in 1922 is bounded by the supraciliary ridge above the supraorbital notch laterally and the nasal bones below. An application of cocaine to any contact points within the nose may give temporary relief to a headache arising from such pressure points and would then justify operative intervention.

Catarrhal and Suppurative Nasal Headaches.

Headaches due to catarrhal and suppurative sinusitis constitute a very large group. The complete absence of headache is quite compatible with gross sinus disease, while its presence does not necessarily indicate active sinus disease at all. Nevertheless many cases of headache would be elucidated if a sinusitis were more thoroughly looked for.

¹ At this point Dr. Halloran discussed the anatomical relations of the trigeminal nerve and sphenopalatine ganglion and showed lantern slides illustrating the important points.

Skellern enunciates several possible causes of headache in sinusitis: (i) Swelling of the mucosa with pressure or irritation of the nerves; (ii) direct contact of the swollen mucosa; (iii) negative pressure in the sinus; (iv) stasis following obstruction of the drainage passages; (v) ulceration of the mucosa with involvement of the nerves; (vi) reabsorption of toxins formed within the sinus; (vii) any condition causing active congestion of the cranial circulation; (viii) disturbances in the blood and lymph circulation at the base of the skull.

Now where secretion is actually retained under pressure, necessarily pain becomes intense. Add to this the statement of S. L. Ruskin, that headaches and systemic disturbances are produced not only by suppurative conditions of the nasal sinuses, but by the irritation of the various nerve tracts long after the suppuration has run its course and stopped. In these cases the inflammation has left a thickened mucous membrane which acts as a source of irritation to the nerve fibres supplying it.

Now all the ætiological factors mentioned by Skellern can pertain to active infections, but those of Ruskin may simply be quiescent, and how can one distinguish between activity and quiescence? To this there is no dogmatic answer in some obscure cases in the present state of our knowledge.

Karl Houser in 1929 stated that all cases of sinusitis fall into one of three groups: (i) Those in which diagnosis can be accurately made by the use of routine procedures, that is, in 80% of cases; (ii) those in which diagnosis can be made by the use of routine procedures and skiagrams combined; (iii) those in which sinusitis is not diagnosed after the above studies have been made, that is, in approximately 5% of cases.

An opacity of a mucosa in a skiagram does not necessarily mean active disease, but may mean simply a thickened mucosa, the evidence of past disease, which may be now quite well, but fibrosed, and requires no further treatment. Repeated proof puncture in such cases may reveal no abnormality and the patient may be quite without symptoms. But when there is positive evidence in the nose in the shape of secretion or polypi springing from the vicinity of any sinus or group of sinuses, our diagnosis is fairly straightforward. The elusiveness of the Pimpernel himself, however, is as nothing compared to the apparent innocence of some sinuses which ultimately may be found grossly diseased, and an appreciation of these difficulties is summed up as follows: Failure to find abnormality at an examination of the sinus is inconclusive and means "try again."

Yet in spite of repeated failure to find evidence of it by proof puncture or aspiration, there may be a latent sinusitis capable of subacute or acute exacerbations causing chronic headache and definite nasal suppuration, or quite frequently a train of symptoms referred to as "hay fever." In fact many of such patients exhibit active allergic phenomena

with positive skin reactions. Such a group of chronic headache sufferers needs much refinement in differential diagnosis. It is often impossible to clinch a diagnosis at all, but in recent years, in addition to all our usual well known methods, we are learning a little more how to interpret skiagrams of our sinus mucosa. The day is fast coming, nay, is here, when the rhinologist may interpret his skiagrams in terms of the degree of fibrosis of the mucosa of the antrum, the degree of polyposis, and the presence of fluid levels. Much work has been done here and abroad in recent years on this subject.

In some cases "antral mapping" with "Lipiodol" or "Campidol" may be practised, revealing a filling defect where there is some degree of hyperplasia. A recognition by the radiologist of our exacting requirements in such a report on the mucosa may help him to produce skiagrams of such definition that the state of the mucosa can often be revealed more clearly than of yore. Stereoscopic pictures are especially valuable. No inference can be drawn from a postoperative opacity. Yet with normal skiagrams and sinus washings we will prefer to rely on our clinical evidence if we are suspicious of any one sinus. Any skiagraphic reports need to be weighed with the clinical findings to decide whether the disease is now active or quiescent.

The accompanying skiagrams illustrate the aforementioned points.

A frontal sinusitis by virtue of its proximity to the frontal cerebral lobe may be complicated by frontal lobe brain abscess. Situated within a "silent area" of the brain, this may exist without symptoms. A fistula may exist through a former wound in the eyebrow providing drainage through a so-called "stalk," and it may be discovered by bismuth injection of this fistula beforehand. Headache is uniformly present, but is more severe than that of frontal sinusitis alone.

The clinical picture of frontal lobe abscess is known to you, but evidence of it, as also of extradural abscess and acute diffuse osteomyelitis, may only be gleaned, however, at the actual time of performance of the external radical frontal sinus operation.

The skiagram showing simply an opaque frontal sinus may not help us, for an acute diffuse spreading osteomyelitis of a frontal bone may be established for probably ten days before there is skiagraphic evidence of its existence.

Headaches of Vasomotor Origin.

Vasomotor rhinitis with positive cutaneous reactions, with its attendant headache and aprosopia is so frequently found in association with disease of the accessory nasal sinuses, that many of us have come to regard the elusive ætiological factor as being frequently disease in one of the paranasal cells which has been overlooked.

Vasomotor rhinitis, however, like asthma, may still persist after complete eradication of the septic paranasal focus and to the physician we turn for

some explanation of such allergic phenomena. It may be held by some that primarily the mucosa is deranged by one of three factors, namely, (i) deficiency in vitamins, (ii) allergy, (iii) endocrine imbalance, and that the sinus infection is the final process. But when there is coexistence of sinusitis and vasomotor rhinitis, perhaps the sinus infection is primary.

It has been observed that lavage of the antrum with hypertonic saline solution during an attack of "hay fever" will often bring immediate relief, and that eventual discovery and eradication of the diseased cell or cells dramatically cures the vasomotor phenomena.

The sinus infection, however, may only be secondary and not primary, for stasis of the cilia of the nasal and paranasal mucosa during such prolonged attacks favours retention of secretions therein, and the ostia are narrowed by turgescence of the mucosa, thereby inhibiting drainage and lighting up a sinusitis. If such be true, the primary allergic factor will still remain after the sinus disease has been eradicated and with it the headaches and secondary train of symptoms will persist. Such a condition might indeed be associated with neurosis of the sphenopalatine ganglion.

In the following table are set out the diagnosis and results of skin tests in four patients suffering from vasomotor rhinitis with chronic sinusitis.

Substance used in Test.	Result.	Diagnosis.
MRS. H.J., aged forty years, married.		
Galliardia	+++++	Bilateral chronic antritis and ethmoiditis. Later acute suppurative frontal sinusitis. Chronic head colds and obstructed nose. Facial swellings of allergic type. Vasomotor rhinitis.
Phlox	++	
Zinnia	++	
White marguerite daisy	++++	
Yellow mar- guerite daisy	++++	
Pussy willow	+	
MRS. R.W., aged thirty-one years, married.		
Yeasts	+++	Bilateral chronic pansinusitis. Antral mucosa polypoid. Vasomotor rhinitis. General pansinusitis (by X ray examination).
House dust	++	
Indoor moulds	++	
Beer moulds	++	
Face powder	+++	
Fluff dust	+	
MR. P.S., aged twenty-eight years.		
House dust	++++	Bilateral chronic antritis and ethmoiditis. Semi-polypoid antral mucosa. Vasomotor rhinitis. X ray appearances normal. (Streptococcus, Staphylococcus aureus, pneumococcus.)
Oatmeal	++	
Kapok	Trace	
Moulds	Trace	
Yeasts	Trace	
Human dander	Trace	
H.R., aged forty-two years.		
House dust	+++	Bilateral chronic antritis, ethmoiditis, (?) sphenoiditis. Antral and ethmoidal mucosa polypoid. Vasomotor rhinitis. X ray appearances normal on two occasions. (Pneumococcus.)
Moulds	++++	
Yeasts	++	
Bowel streptococci	+	

Headache due to Complications of Otitis Media.

In the intracranial complications of *otitis media* and mastoiditis, headache is a symptom of great significance.

The headache of an otitic cerebral abscess (usually in the temporo-sphenoidal lobe), if typical, is a persistent, dull, boring ache, referred to the side of the lesion and may extend from the frontal to the occipital region. It may become less severe as the abscess increases in size and the senses become dulled by increasing intracranial pressure.

Such a headache may be the first symptom to excite suspicion of intracranial complication of chronic suppurative *otitis media* in a patient who is up and about.

The headache of otitic cerebellar abscess is usually more severe, more persistent and more frequently confined to the side of the head and to the suboccipital region. It is usually an exceedingly persistent and harassing symptom.

That combined temporo-sphenoidal and cerebellar abscesses occur in about 2.5% of all cases of brain abscesses and that a localized temporo-sphenoidal suppuration occurs with about 6% of all cerebellar abscesses make us realize the difficulties of a differential diagnosis. According to Eagleton cerebellar infection occurs in (a) 45% of cases through the labyrinth, (b) 32% through the lateral sinus (thrombosis), (c) 22% by direct extension backwards through a carious mastoid.

There will be evidence of all of these foci before or during the performance of the mastoid operation and they will cast suspicion on the posterior fossa. On the other hand, the finding of an extradural abscess or subdural collection above the tegmen at operation will naturally focus suspicion on the temporo-sphenoidal lobe in the middle fossa.

A chronic diffuse suppurative labyrinthitis may be attended by a low grade headache. Such conditions are readily diagnosed on account of the existence of complete unilateral deafness and failure to respond to any vestibular stimulation of the affected side. There is an accompanying nystagmus.

The labyrinth, by virtue of its direct communication with the subarachnoid space, is a frequent forerunner of otitic meningitis, of which the clinical picture and agonizing pain are known to you.

NOTES ON VAGINAL DISCHARGE.¹

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ONE of the most common and distressing conditions we are called upon to treat is vaginal discharge.

What causes the discharge? Where does it come from? What can we do to cure or relieve it?

¹ Read at a meeting of the Ipswich Hospital Clinical Society on July 17, 1930.

Anatomy and Physiology.

Before attempting to answer these questions I would ask leave to review briefly some important points in the anatomy and physiology of the genital tract.

The Fallopian tubes are lined by a single layer of ciliated columnar epithelium, which is thrown into numerous folds. This mucous membrane has no glands but secretes a small quantity of serous fluid sufficient to keep the surface moist. The lumen of the interstitial portion of the tube, that is that part of the tube which passes through the uterine wall, is very fine. The slightest inflammation of its mucous membrane generally blocks the passage into the uterine cavity and any pathological discharge which may collect in the tube is more likely to find its way into the peritoneal cavity rather than into the uterus and so to the exterior. The interior of the Fallopian tube is normally sterile.

The cavity of the *corpus uteri* is lined by a layer of smooth glandular mucous membrane known as the endometrium. The surface epithelium is a single layer of ciliated columnar cells. Its numerous glands are of the simple tubular type, wave-like in shape and running down to the muscular wall, but not penetrating it. They secrete only a small amount of serous fluid during the intermenstrual period. The endometrium, however, since it is concerned with menstruation and pregnancy, is undergoing constant change. During each menstrual cycle the mucous membrane grows in such a manner that just before menstruation begins it is definitely differentiated into three easily recognizable portions: (i) A surface epithelium with closed efferent ducts, (ii) an active or functional portion with the lumina of the glands full of secretion, (iii) an inactive portion at the fundi of the glands.

As menstruation commences the efferent ducts open and allow the secretion of the active portion to escape. This contains an active trypsin ferment which digests the endometrium and prevents the clotting of blood. The menstrual discharge contains blood, serous fluid, secretions of glands and digested parts of the endometrium. It is normally alkaline in reaction. After menstruation the endometrium regenerates from the few cells of the inactive portions of the fundi of the glands. The thickness of the endometrium in the post-menstrual phase is 0.5 millimetre, whereas its thickness in the premenstrual phase is 10 to 15 millimetres. The cavity of the uterus is normally sterile. The *corpus uteri* has a comparatively poor lymph supply.

The cervical canal is lined by mucous membrane which differs in several important respects from the endometrium. (i) It is thrown into a series of oblique ridges or folds known as the *arbor vitae*; (ii) its columnar epithelial cells are taller than those of the endometrium; (iii) its glands are of the compound racemose type, which penetrate the muscular wall of the cervix; (iv) its glands secrete a thick sticky mucus; (v) it takes absolutely no part in menstruation.

The vaginal aspect of the cervix is covered with squamous epithelium continuous with the lining of the vagina. The cervix is richly supplied by lymphatics which drain into the larger lymph vessels on the pelvic walls through smaller vessels in the parametrium at the bases of the broad ligaments and in the utero-sacral ligaments. There is definite anastomosis between the lymphatics of the cervix and those of the *corpus uteri* and Fallopian tubes. Lymph draining from the cervix comes into close contact with the sympathetic nerves as it passes through the parametrial tissues to the large vessels on the walls of the pelvis. The cervical canal in a nulliparous woman is normally sterile.

The vagina is lined by stratified squamous epithelium which is thrown up into transverse and oblique ridges. There are no glands in the vaginal walls. The small amount of secretion which is normally present in the vagina is merely a serous transudation with cast-off epithelial *débris* and a little mucus from the cervical glands. Normally the vagina contains no pathogenic organisms, but saprophytic organisms are present. The normal acid reaction of the vaginal secretion is due to the presence of Döderlein's bacillus.

There are two glands, one on either side of the *introitus vaginae*, known as Bartholin's glands. These glands secrete mucus. Skene's glands are very small and have their ducts opening into the urethra just inside the *meatus urinarius*.

The amount of discharge from a perfectly healthy genital tract is so slight that it is very rarely noticed.

Cause of Discharge.

What causes pathological discharge? (a) Hormonal disturbance, (b) retained products of conception and foreign bodies, (c) neoplasms, (d) infection by pathogenic organisms.

In investigating a patient suffering from vaginal discharge one must be careful to include in the history the nature of the discharge, its relation to menstruation or pregnancy and any associated symptoms.

I now propose to discuss the more important causes of discharge from each of the various parts of the genital tract and briefly to mention some points in treatment.

Discharge from the Fallopian Tubes.

The only type of discharge from the Fallopian tube is purulent. It is usually due to septic infection after pregnancy or to gonorrhœa. In cases of acute tubal infection the best treatment is absolute rest in bed; long hot douches and glycerine and ichthyol tampons in the vaginal vault should be used, as long as improvement is maintained. If no improvement occurs, surgical treatment is necessary. Chronic salpingitis is best treated by resection of the tube, including the interstitial portion. Medical diathermy may be given a trial.

Discharge from the Uterus.

Discharge from the uterus may be either sanious or purulent and may be due to any of the four causes mentioned previously.

Hormonal Disturbance.

The condition known as *metropathia hæmorrhagica* is due to hormonal disturbances. Usually five to ten primordial follicles begin to develop to maturity in the ovary each month, but only one ever becomes a Graafian follicle. The others perish and become small cysts, but their lining membrane becomes a ductless gland producing hormones.

The ovary needs activation by hormones from the pituitary gland. In certain states of hormonal imbalance between ovary and pituitary there is no formation of Graafian follicles and therefore no *corpus luteum* comes into existence. Irregular bleeding now begins from the endometrium. The bleeding may be copious and is always irregular and sustained. The correct diagnosis can only be suspected by excluding other causes. There are no associated symptoms nor signs at all.

The treatment should be to correct the hormonal disturbance. This is attempted by small doses of X rays to the pituitary gland or to the ovary, and the exhibition of pituitary extract and extract of *corpus luteum*. The only extract of *corpus luteum* I have found useful at all is that prepared by C.I.B.A. and known as "Sistomensin." I cannot say anything about the X ray treatment, but do not think it has given satisfactory results. If these conservative measures fail, radical treatment, that is, hysterectomy, may become necessary. There is no definite anatomical change in the uterus in this condition.

Retained Products of Conception and Foreign Bodies.

Retained products of conception and foreign bodies may cause a discharge of blood or pus, generally of both. The diagnosis is generally obvious from the history and associated symptoms and on examination a patulous cervical canal and internal os is discovered.

The treatment will be merely outlined.

1. If hæmorrhage is serious, completely empty the uterus, preferably with the index finger or ovum forceps. Only use a curette when it is impossible to explore the cavity of the uterus with the finger.

2. If hæmorrhage is not serious, give the uterus an opportunity to empty itself. Stimulation by ergot, quinine *et cetera* should be attempted. If these measures are not successful, empty the uterus.

3. If sepsis is present, a trial should first be given to intrauterine injections of pure glycerine until the sepsis has abated. The uterus may be emptied later if necessary.

4. If a foreign body is present, for example, gauze, rubber tube *et cetera*, gentle mechanical removal is the best course.

Neoplasms.

Neoplasms, benign or malignant, may be the cause of either sanious or purulent discharge from the uterus.

Benign neoplasms are usually fibroids. Both intramural and submucous fibroids cause excessive bleeding and may, if they degenerate, become infected and cause purulent discharge. Even subperitoneal fibroids can cause congestion and excessive bleeding from the uterus by their pressure in the pelvis.

Treatment is either myomectomy or hysterectomy, according to circumstances.

Simple hyperplasia of the endometrium is often associated with subinvolution of the uterus after the termination of pregnancy, generally with mild sepsis as a factor. If persistent or troublesome bleeding occurs in this condition, curettage may be of value.

General fibrosis of the uterus, when the whole uterus is enlarged, hard and fibrous, is a condition common enough in women approaching the menopause and often causes severe hæmorrhage. Hysterectomy is absolutely necessary to control the bleeding.

Another important condition is adenomyosis with invasion of the myometrium by the endometrium. When the uterus is cut through, the muscular tissue retracts, but that part of the muscular wall which is invaded by endometrium, does not retract. The certain diagnosis of this condition is not possible until after the uterus has been removed. The bleeding caused by this condition is often very severe. In the majority of cases the patient is close to the menopause. Conservative treatment is useless and extirpation of the uterus is necessary to save the patient from profound secondary anæmia.

Malignant tumours of the *corpus uteri* are usually carcinomata, but may be sarcomata. The discharge is usually but not always very offensive and blood-stained, and is the only symptom in the early stages. Sometimes the earliest symptom is a discharge of pure blood. The discharge is constantly present. Total hysterectomy is usually followed by cure excepting when the disease is advanced.

Infection by Pathogenic Organisms.

Infection by pathogenic organisms is usually seen only after pregnancy and causes purulent discharge which is nearly always mixed with blood. The treatment is as previously outlined.

Infection of the interior of the uterus by tuberculosis or gonorrhæa may occur. The former is very rare and the latter requires no special treatment, as the infection only remains in the uterus during the acute stage.

We notice, therefore, that purulent discharge from the uterus is comparatively rare excepting after pregnancy, when there are retained products of conception in its cavity.

Cervical Discharge.

Discharge from the cervix is caused by neoplasms or infection by pathogenic organisms.

Benign neoplasms of the cervix are usually fibroids or polypi. Fibroids of the cervix rarely cause bleeding, but polypi do so very commonly. Treatment is to resect the growth. Malignant neoplasms of the cervix are unfortunately only too common. They are usually adenocarcinomata, but may be epitheliomata involving the squamous epithelium of the vaginal aspect of the *portio intra-vaginalis*. The discharge is usually blood-stained and foul, but may be pure blood. No treatment can be too radical for malignant disease of the cervix. Hysterectomy by either Wertheim's or Schauta's method, according to the type of patient, with X ray therapy later is the best treatment that most of us can offer at present.

Surgeons thoroughly trained and experienced in the use of radium can offer these patients a slightly better chance of permanent cure without extensive mutilation of their bodies. Radium also appears to afford a great deal of relief in many cases of inoperable cancer.

Infection of the cervical mucosa by pathogenic organisms is one of the most common causes of discharge from the genital tract. In the acute stage of the infection the discharge is purulent, with a small amount of mucus only, but in the chronic stage the discharge is usually mucopurulent, thick and sticky; only rarely is it thin and watery.

Gonorrhœa is undoubtedly responsible for cervicitis in many instances, but by far the most common cause is mild septic infection after child-birth, when the cervix has been bruised and lacerated.

Acute cervicitis usually subsides in a week or two, but chronic cervicitis often persists for years.

The more important symptoms of chronic cervicitis are vaginal discharge, backache, pain in the iliac fossæ, dyspareunia and some degree of menstrual disturbance, generally a tendency to excessive loss of blood. General ill health is frequently due to this condition. Headaches, dyspepsia, functional disturbances of the heart and even joint pains often improve considerably after efficient treatment of the diseased cervix.

The causation of most of the symptoms is easily understood when we take note of the following special points in the anatomy and physiology of the cervix: (i) The type of gland forming its mucous membrane; (ii) its function of secreting mucus; (iii) the mucous membrane, taking no part in menstruation; (iv) its rich lymph supply, which comes into intimate relationship with the sympathetic nerves in the pelvis.

Its compound racemose glands which penetrate the muscular tissue, drain badly when infected; infection may linger in them indefinitely. The efferent ducts are apt to become blocked by contraction of scar tissue. The chronic inflammation then causes hypertrophy of the glands and increased activity of their function, that is, the secretion of mucus. The pathogenic infection causes pus to be produced also, with the result that the discharge becomes more or less copious, thick, sticky and mucopurulent.

Owing to the fact that it takes no part in menstruation, the mucous membrane with its glands is not digested away each month and new glands formed, as occurs in the endometrium; consequently infection, having once gained access to the glands, is very likely to remain there.

Chronic infection of the glands results in chronic lymphangitis in the vessels draining away through the bases of the broad ligaments and the uterosacral ligaments, resulting in dyspareunia, backache and pain in the iliac fossæ. Many other symptoms are caused through irritation of the sympathetic nerves by the inflamed lymphatics.

Treatment of Cervicitis.

Treatment of acute cervicitis depends largely on whether the infection is due to sepsis or gonorrhœa. If septic, it is probably associated with trouble in the *corpus uteri* and appropriate treatment has already been outlined. If gonorrhœa is the cause, rest in bed, antiseptic tampons containing glycerine, and long hot antiseptic douches are used until the acute stage is past.

Chronic cervicitis requires most careful and thorough treatment. Special consideration must be given to the patient's age, the possibility of future pregnancy and associated pathological conditions before deciding on the treatment. Each case has to be considered on its own merits, but we can for the purpose of discussion outline the treatment in three groups of patients.

1. When the disease is certainly due to gonorrhœa. Removal of all the mucous membrane of the cervical canal is necessary to cure these patients. Sturmdorff's or Schlink's operation should be used.

2. When the reproductive function must be conserved, if possible, thorough dilatation of the cervix and resection of the diseased tissue at and just above the external os are carried out as follows:

The cervical canal is thoroughly dilated. The anterior lip of the cervix is grasped with a Skene's tenaculum and the posterior lip by another. A transverse incision is now made across the cervix and with the aid of the tenaculum forceps the anterior and posterior lips are retracted apart so that the mucous membrane lining the cervical canal can be inspected. The incision is carried deeply enough to allow a transverse incision to be made across the inner aspect of each of the lips at a level where the cervical mucous membrane appears to be healthy. Transverse incisions are now made in the outer aspects of the two lips of the cervix in such a manner that a wedge-shaped piece of the external os containing most of the grossly diseased tissue is removed from each lip. The cervix is now reconstructed by the insertion of chromicized catgut sutures, and a hollow pessary is inserted through the cervical canal. The pessary is allowed to remain during the healing process. There is a minimum of scar tissue in the cervix after such an operation and there is no difficulty in the dilatation of the cervix in subsequent labours.

It is useless to curette the cervical canal or to paint the external os with antiseptic *et cetera*, but the use of the cautery may be tried in the following manner: After thorough dilatation of the cervical canal the cautery is drawn from the internal os to the external os so that the point thoroughly penetrates the mucosa. This is repeated five or six times in different places. Two or three sittings at intervals of a fortnight may be necessary. This method was described by Young, of Edinburgh, in a recent issue of *The British Medical Journal*.

3. When the patient is at or about the menopause and the reproductive function can be ignored and when the premalignant state has to be suspected.

Radical treatment is usually indicated in this group, as these patients frequently have associated pathological conditions of the *corpus uteri*. Sturmdorff's operation, high amputation of the cervix or total hysterectomy, especially if metrorrhagia is also present, may be required.

Discharge due to Vaginal Disease.

Discharge caused by disease of the vagina may be due to neoplasms or pathogenic infection. Neoplasms are usually carcinomata which have originated in the cervix and invaded the vagina. Primary epithelioma and sarcoma of the vagina may occur. Treatment is by extensive resection or by the application of radium.

Pathogenic infection of the vagina is not as common as might be expected, and this is largely due to the protective action of the Döderlein's bacillus, which causes the vaginal secretion to be acid in reaction. Acute vaginitis is usually due either to gonococcal or streptococcal and staphylococcal infection, but may be due to infection by the *Trichomonas vaginalis*.

Vaginitis usually responds quickly to treatment by rest in bed and the use of antiseptic douches. Infection by the *Trichomonas vaginalis* is often very resistant to treatment. This organism is a motile protozoon and is very difficult to detect in the discharge except in hanging drop preparations. It causes a thick, foamy, purulent discharge with a rather disagreeable odour. In the acute stage of the infection the vulva and vaginal walls are very injected and tender, but the urethra is not involved as in gonorrhoea. In the chronic stage the tenderness in the vagina diminishes and the discharge becomes less foamy and more watery in character, but relapse to a subacute condition is common. For treatment the following methods are recommended: Rest in bed; very thorough scrubbing of the vagina with ethereal soap; the application of biniodide or perchloride of mercury solution in a dilution of one in 1,000; the application of tampons of *glycerinum boracis* or of methylene blue in a 10% solution in glycerine.

Bartholin's gland may become infected by septic organisms and cause a discharge. Treatment in the acute stage consists of incision of the inflamed gland. If the inflammation becomes chronic, the gland should be resected.

GYNÆCOLOGICAL NOTES, WITH A SPECIAL REFERENCE TO THE USE OF RADIUM.¹

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I HAVE chosen this subject for my address for two reasons: First, because radium is a therapeutic agent of considerable interest at the present time and, secondly, because I wish to put before you in detail the methods of the Radiumhemmet, Stockholm, which, though they have produced results of a high order, yet have not received the detailed attention which they deserve.

The paper is composed of ideas imbibed by watching several workers in London, by reading a considerable quantity of the literature on the subject and by a visit to the Radiumhemmet in Stockholm.

I should like to place on record the extreme kindness and courtesy with which I was treated by all the members of the staff at the Radiumhemmet, and mention especially Dr. James Heyman and Dr. Ellis Berven.

Before commencing the subject matter of the address, an apology is due to those of you who are more familiar with the physical properties and uses of radium than I, but if you realize that the views put forward are given from a gynæcological and not from a radiological aspect, perhaps you will listen with less harsh criticism.

THE PHYSICAL PROPERTIES OF RADIUM.

For the purpose of the paper it is necessary to state certain elementary facts. Radium is a radioactive substance and the emanations are known as α , β and γ rays. The α rays are particulate, but are not utilized in practice, as they are readily absorbed by such substances as 0.03 millimetre of glass or mica and 0.01 millimetre of tissue. The β rays are also particulate and they are practically absorbed by a screen of lead one millimetre in thickness. They penetrate but a few millimetres of tissue and are suitable only for the treatment of superficial lesions. The γ rays differ from the α and β rays in being high frequency vibrations with great penetrating powers, and these are the rays used for the most part in gynæcological therapeutics.

SECONDARY RADIATIONS.

All three rays, when they come into contact with matter, produce secondary radiations which are of the β type, and so can cause considerable damage to tissues. These secondary radiations are absorbed by gauze or rubber screens.

THE EFFECTS OF RADIUM ON THE TISSUES.

In regard to the effects of radium on tissues, I will give you three opinions only.

Forsdike states that sublethal exposures slow the growth of tumour cells, while shorter treatments stimulate the cellular activities.

¹ Read at a meeting of the Queensland Branch of the British Medical Association on October 3, 1930.

It is a clinical fact that radium will destroy malignant cells without causing death to neighbouring healthy tissue cells. Pinch puts the position clearly when he says that the main principles underlying all radium therapy is the correct estimation of the dosage and exposure necessary to bring about the death of the pathological cells without appreciably affecting the functions and vitality of the normal ones.

Heyman is of the opinion that the action of radium differs from that of such procedures as cauterization, in which the growth and neighbouring tissues are destroyed. Radium destroys the malignant cells and causes a regeneration of normal tissue at the site of the tumour. After treatment of a cancer of the *cervix uteri* by radium, the cervix and vagina regain their normal shape, but generally with slight atrophy.

DOSAGE.

In the estimation of the dosage necessary for the treatment of any particular condition reliance has to be placed on the dearly-bought clinical experience of those workers who have been using radium for a considerable length of time. It cannot yet be said that this dose of radium must be used for adenocarcinomata and that for epitheliomata. There are two main schools of thought: (i) That of those who apply relatively small doses for a comparatively long period, and (ii) that of those who apply large doses over a short period.

To the former belong Lacassagne, of Paris, and Donaldson, of London, while to the latter belong Heyman, of Stockholm, and some of the London workers who are using a modified Heyman technique. A discussion on their relative merits would be out of place in this paper, but it might be of interest to give the opinions of a representative of each. Lacassagne, of the University Radium Institute of Paris, thinks that neoplastic tissues develop a resistance to rays when radiated at long intervals. If the growth is radiated continuously over several days, the normal tissues develop a toleration, while the action on the growth is increased. He admits that if the treatment occupies too many days, it is likely to be ineffective because the average intensity of the rays may have only a sublethal and not a lethal effect, but says that cancer cells may recover or even gain an increased resistance to the rays when an interval is arranged between treatments. Heyman, on the other hand, holds that lengthy treatment, small doses and weak filtration result in sloughing of the tumour and the neighbouring tissues, even to the extent of perforation of the rectum. With short treatment, large doses and heavy filtration, perforations are uncommon and the effect is more lasting and more efficient. A few big doses for short periods bring about greater diminution in size of the tumour with little superficial destruction and less reaction on the part of the patient.

FILTRATION.

Pure γ ray therapy is generally utilized in gynaecological radiological practice and the necessity for this is explained by the fact that β rays, although probably affecting the tissues in the same way as γ rays, yet do not possess the same penetrating properties and, being absorbed by a few millimetres of tissue, exert their lethal effect solely in those few millimetres. In the vagina, therefore, β rays cause considerable sloughing and necrosis of tissues if they are not screened. To a much less extent the same principle holds in the case of the soft, less penetrating γ rays, and both Heyman and Lacassagne, when treating carcinoma of the cervix, filter off these rays also by means of a filter equivalent to three millimetres of lead.

SEQUELÆ AND DANGERS OF USING RADIUM IN THE VAGINA.

The sequelæ and dangers of using radium in the vagina are given by Heyman as four in number.

1. There occur inflammatory changes in the rectum from a simple œdema of the mucous membrane to ulceration and even recto-vaginal fistulæ.

2. Inflammatory conditions such as sepsis, diffuse peritonitis and pelvic peritonitis result. The two first are serious and nearly always lead to death.

3. General reaction occurs and is evidenced by languor, headache, nausea, sometimes actual vomiting and a rise of temperature to 37.8° or 38.3° C. (100° or 101° F.).

4. The danger of radium treatment worth stressing is that its harmful effects do not become evident for a long period, as a rule about six months after treatment, so that severe damage may be inflicted on a number of patients before it is realized that the method of treatment has been incorrect.

RADON OR RADIUM EMANATION.

I mention radon because it is being used in place of radium under certain circumstances, but in none of the centres visited by me was it used for gynaecological purposes.

CLASSIFICATION OF CONDITIONS TREATED.

For the purpose of giving a more or less detailed account of the treatment of the different gynaecological conditions by means of radium, I have classified them as follows:

(a) Malignant conditions:

1. Carcinoma of the *cervix uteri*.
2. Carcinoma of the *corpus uteri*.
3. Carcinoma of the ovaries.
4. Carcinoma of the vulva.

(b) Non-malignant conditions:

1. Uterine hæmorrhage.
2. *Fibromyomata uteri*.
3. Dysmenorrhœa.

CARCINOMA OF THE CERVIX UTERI.

Before the actual technique of the treatment of carcinoma of the *cervix uteri* is discussed several facts will be mentioned. These are its mode of spread, the necessity and value of cystoscopic

examination as a preliminary, the contraindications to the use of radium and the standardization of the classification of the degree of spread.

The mode of spread may be given shortly thus: (i) By direct and lymphatic spread into the cellular tissue of the pelvis, either laterally with involvement of the ureters, posteriorly with involvement of the rectum or anteriorly with involvement of the bladder or into all three; (ii) vaginal, generally by surface spread of the growth; (iii) lymph-glandular by way of the lymphatic vessels.

With regard to the cystoscope, Heyman makes a cystoscopic examination as a routine before his first radium application to determine the extent of involvement of the bladder wall. The cystoscopic findings are classified into three stages. In the first stage there is no invasion of the bladder wall, the picture being one of hyperæmia of the trigone and bulging of the floor of the bladder. In the second stage the muscular coat of the bladder wall is involved, the picture being characterized by folds in the fundus and bullous œdema of the bladder wall. In the third stage the picture is that of the carcinoma invading the mucous membrane with fistula formation.

A further use for the cystoscope is found in Vienna. It is considered that the parametrial thickening generally associated with cancer of the cervix and always present for some time after radiological treatment, can be differentiated into malignant or inflammatory invasion. The procedure is as follows. The ureter on the affected side is catheterized and the mode of exit of the urine from the catheter decides the question. If it is normal, that is, a small series of drops and then a pause with repetition of the cycle, then the condition is inflammatory. If its exit is not normal, that is, a continuous series of drops, then the condition is malignant. The interpretation of these phenomena depends upon the fact that inflammatory conditions of the parametrium do not cause ureteral obstruction while malignant invasion does.

The contraindication to the application of radium is the actual presence of a fistula, vesico-vaginal or recto-vaginal.

To make the results of the various clinics comparable, a standard scheme of classification has been drawn up by the Radiological Subcommission of the Cancer Commission of the Health Organization working under the League of Nations, and I understand that most Continental authorities have adopted and are using this scheme. Such a standard is necessary if the work of the various clinics is to be assessed at its true value.

Treatment in Detail.

I propose to present to you the methods of the following authorities: Heyman, of Stockholm, Lacassagne, of Paris, and Donaldson, of London, in order to give you some idea of the differing methods of attacking the problem.

The Technique of Heyman.

The technique in treatment of cancer of the cervix as carried out at the Radiumhemmet, Stockholm, under James Heyman, is given in summary. The number of applications is small, three at most, and an interval of one week occurs between the two first applications, three weeks being allowed to elapse between the second and third. Relatively large quantities of radium are used at each application, one hundred to one hundred and twenty milligrammes of radium element. A filter equivalent to three millimetres of lead is always in use. Each application lasts about twenty hours, giving a total irradiation of about sixty hours.

An essential part of the technique is to adapt in each case the technique to the local condition. For this purpose Heyman has a variety of shapes and sizes of radium applicators, made to contain a varying number of radium tubes. For intrauterine use cylindrical applicators are used. For vaginal application he has cylinders and boxes of varying sizes. For the boxes he has clips which make it possible to use two, three or four small ones as are required. In conjunction with the cylinders he sometimes uses sledges of aluminium or celluloid to keep them in position. For cauliflower growths he has three containers especially shaped to suit the tumours, each container forming one-third of an amputated cone.

In selecting his vaginal applicators, he has two aims. One is to cover the whole surface of the growth with radium and the other is to go as close as possible with the radium to the side walls of the pelvis by stretching the vagina laterally with the applicator. The total filtration throughout is equivalent to three millimetres of lead and for secondary filtration he uses thin rubber in the uterus and in the vagina two layers of thin paper, one thin layer of cotton wool, besides oiled silk, the last being considered essential.

A short description of a typical method of treatment will help to make the procedure clear. As a rule no anæsthetic is administered. The patient is placed in the lithotomy position and the cystoscopic examination is made. The patient is then examined vaginally and bimanually and the type of applicator is decided upon. The necessary applicators are then filled with the requisite amount of radium and sterilized. The vagina and surface of the growth are cleansed carefully with benzin. The uterine sound is passed into the cavity of the uterus and the cervical canal dilated with graduated dilators sufficiently to permit the introduction of the intra-uterine applicator. This is passed into the uterus, biopsy performed and a piece of the tumour taken for microscopical examination. The vaginal applicator is then fitted into position over the cervix and reliance is placed on careful packing of the vagina with gauze to keep it in position and to keep the rectum as far as possible away.

The amount of radium inserted at the first treatment is about forty milligrammes in the uterus

and seventy-eight in the vagina. This is allowed to remain in position for about nineteen hours, giving a vaginal dose of 1,480 milligramme-hours and a uterine dose of 760 milligramme-hours.

The second application on the eighth day and the third three weeks later each give about the same dose for about the same length of time. The total dose given to the patient is 2,000 to 2,600 milligramme-hours in the uterus and about 4,500 in the vagina. The radium tubes are so arranged that each application lasts about twenty hours.

The Course of the Disease after Treatment. Improvement is noticed soon after the conclusion of treatment. The general condition of the patient has improved in eight weeks, due to the cessation of the hæmorrhage, discharge and pain. An atrophic cervix has been reformed after disappearance of the tumour in from two to three months, but in some cases this process takes six months. Local recurrence generally appears within the first year of apparent cure. Glandular metastases may appear years after the disappearance of symptoms.

Variations in the Typical Method. While I was in Stockholm, Heyman was working on a series of patients to whom his total dose was given in two applications, the second one week after the first. He has published the results in one hundred and ninety-four cases and found them to be about the same as those from his standard technique. But he insists on results from a larger number of patients before he will consider adopting a technique different from his standard one. The total vaginal dose is occasionally reduced, for example, in the presence of an atrophic genital tract, and also when the posterior vaginal wall is involved in the growth. He is now using a continuous blood control in all patients and regards a leucopenia *plus* a relative lymphopenia as necessitating a smaller dose than the average. He has found that since adopting this blood control, severe nausea has become a rare complication. Treatment is interrupted if the temperature rises to 38.9° C. (102.2° F.) during treatment, but is recommenced on subsidence of the fever. Pelvic peritonitis is regarded as a contra-indication to any radiological treatment.

The various forms of local recurrences and metastases are treated differently. Local recurrence is treated by hysterectomy or, if the patient's condition is not operable, by intubation of radium needles. Isolated nodular vaginal metastases are intubated while superficial involvement of the vaginal mucous membrane is treated by surface radium application. Glandular metastases have hitherto been treated by Röntgen rays, the opinion being, however, that nothing but short-lived temporary results can be obtained in this way. The results with radium-at-distance for this complication have been discouraging also.

A radium "gun" or "bomb" is in use at the Radiumhemmet and although the results are encouraging, the number of patients has been too few to make a definite pronouncement. The amount

of radium in the "gun" has been between eight hundred and fifteen hundred milligrammes of radium element. The filter is two millimetres of lead *plus* 0.5 millimetre of copper and the distance from the patient has been five centimetres. Both parametria are attacked from two ventral fields when they are both involved. When one parametrium alone is involved, one field on the affected side is used. The total dose has been twenty gramme element hours at most and the patient is radiated for from two to four hours per day.

The Technique of Lacassagne, of Paris.

Lacassagne states that patients in stage 1 whose disease is limited to the cervix, merely need the local application of radium salt, but that all other patients should have either radium-at-distance or Röntgen ray treatment in conjunction with the local application.

Efficient sterilization of the vagina is insisted upon and biopsy is performed eight or ten days prior to the radium application. The radium is packed into six tubes which are divided into two sets, so that each set has two 13.33 milligramme tubes and one 6.66 milligramme tube, one set being packed into the uterus and the other into the vagina. The tubes of the uterine set are placed end to end in a rubber sheath and of the vaginal set the two 13.33 milligramme tubes are laid flat in an antero-posterior direction, one in each lateral fornix of the vagina. These latter are kept as far apart as possible by means of a colpostat, which consists of a spring fitted with a hollow cork cylinder at each end to contain the radium. The third tube of the vaginal set is set in a cork cylinder and placed between and parallel to the other two tubes in the hollow of the spring.

The average length of treatment is five days and during that period the appliances are removed and disinfected daily.

The filtration is as follows: For the uterus a primary one equivalent to two millimetres of lead and a secondary one of rubber 1.5 millimetres thick. For the vagina the primary filter is equivalent to three millimetres of lead, the secondary being the cork cylinder of 0.5 centimetre thickness.

The total dose in the uterus is four thousand milligramme hours and in the vagina the same.

The Technique of Donaldson, of London.

Fifty milligrammes of radium contained in twenty-two needles are inserted in and around the growth by Donaldson. Sixteen of the needles are short and contain two milligrammes of radium, while six of them are longer and contain three milligrammes of radium. The small needles are inserted into the tissues around the growth and into the growth itself, while the large ones are pushed into the parametria through the lateral vaginal fornices. The vagina is packed with gauze soaked in flavine and the patient is not touched for six days, when the gauze and needles are removed.

In addition to this vaginal application, the abdomen is opened six to eight weeks later and radium is inserted in needles all round the brim of the pelvis, the needles being one to one and a half centimetres apart. They commence at one sacro-iliac synchondrosis, pass round the brim of the pelvis and terminate at the opposite synchondrosis. To each needle is attached an insoluble ligature and the ends of these are tied together and pushed into the pouch of Douglas. The abdomen is then closed, the needles being left *in situ* for seven days, after which time they are removed through the original incision.

The filtration in the vagina is equivalent to one millimetre of lead and the total dose in the vagina and fornices is 7,200 milligramme-hours.

CARCINOMA OF THE CORPUS UTERI.

The same interest does not attach to radium treatment of carcinoma of the *corpus uteri* as it does to that of cancer of the cervix, for it is generally held that surgery gives better results, but some radiological views are of interest.

Lacassagne thinks that adeno-carcinomata are much more resistant to radiotherapy than epitheliomata. Heyman, on the other hand, is not of this opinion, but thinks that the problem is a mechanical one in that if the radium could be brought into intimate contact with the malignant area as it is in epitheliomata of the cervix, then the effect would be just the same. He has defined his attitude as follows. Where the cancer is such that it is judged possible to bring the radium container into close apposition with it, use radiation first and, keeping the patient under observation, do nothing unless signs of malignant activity appear. These are hæmorrhage, discharge and increase in size of the uterus. If they appear, operate. Where the cancer is such that it seems unlikely that the radium container will be in close apposition to the growth, operate first and then use radiation.

Heyman's principles of treatment can be given briefly. They are the same as in the case of carcinoma of the cervix and radium is applied in the vagina as well as in the uterus, but the vaginal dose is limited to two-thirds that for cervical cancer. Local treatment for a recurrence can be repeated in those patients in whom operation is contraindicated.

CARCINOMA OF THE OVARIES.

In regard to carcinoma of the ovaries, Heyman is satisfied that radiological treatment alone will not give permanent cure. He advises laparotomy and removal of the growth. If for any reason a radical operation cannot be performed, then the uterus and metastases should be left while the ovarian tumours are removed. If operation is contraindicated, then treatment with Röntgen rays is begun, commencing with a small dose, one-tenth or one-eighth of a skin erythema dose on each field, not larger than ten by ten centimetres, into which the abdomen is divided. One field only is irradiated

each day with a skin focus distance of thirty to forty centimetres and a copper filter of 0.5 millimetre. The dose is gradually increased; the rate of increase depends on the condition of the patient, until a total dose of about one skin erythema dose has been applied to each field. If after this treatment the tumour becomes small and mobile, the patient is operated upon, preferably within four weeks of the last treatment, and the radiation treatment is continued after operation. In those patients on whom an incomplete operation has been performed, Röntgen ray treatment is given as above. Radium treatment is given in addition to this, one intrauterine application for about thirty hours, giving a total of about 1,500 milligramme-hours. Vaginal metastases are treated by radium.

Heyman issues a warning against the danger of over-treatment which may result in the last condition of the patient being worse than the first, and he mentions that he has been able to keep a number of patients free from subjective symptoms and able to work for several years by repeated treatments.

CARCINOMA OF THE VULVA.

Up to and including 1920 the surface application of radium tubes by means of a plastic mass was the method of treating carcinoma of the vulva at the Radiumhemmet. But the technique was altered on account of difficulties of application and late secondary necrosis. At present the treatment for small tumours of the vulva, well localized, is electro-endothermy, and two flat electrodes with a diameter of one centimetre are placed one on either side of the labium and the tissue between them is cooked to the consistency of boiled meat. The flat electrodes are then moved to another part of the tumour and the process is repeated. During the coagulation, which lasts for five or six minutes, cold salt solution is made to flow over the urethral orifice to prevent its destruction by heat. For large tumours, and especially when the urethral orifice or underlying bone is involved, distance radiation is first applied. The dose is from twenty-five to thirty gramme-hours with a filter equivalent to three millimetres of lead, the radium being five centimetres distant from the tumour. Following this treatment, which produces a reduction in the size of the tumour, electro-endothermy is carried out. Glandular metastases are treated according to their stage of involvement. In stage I cases, where no certain glandular involvement can be detected, radium-at-distance is used, twenty to twenty-five gramme-hours being given, and the patient is kept under observation. If metastases later become demonstrable, another radium-at-distance treatment is given, followed by radical dissection of the glandular area. In stage II cases, where glandular metastases can be detected clinically and where the prognosis is bad, the procedure consists of pre-operative treatment by radium-at-distance followed by operative dissection of the glandular regions on

ILLUSTRATIONS TO THE ARTICLE BY DR. GARNET R. HALLORAN.

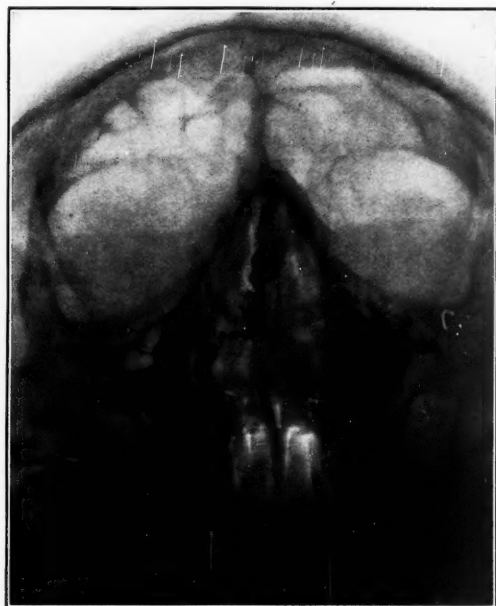


FIGURE I.
Antral mapping by "Lipiodol" injection, demonstrating polyposis of antral mucosa, confirmed at radical antrum operation. Negative proof puncture.



FIGURE II.
Large polypus at base of antrum. Note the convex upper margin.

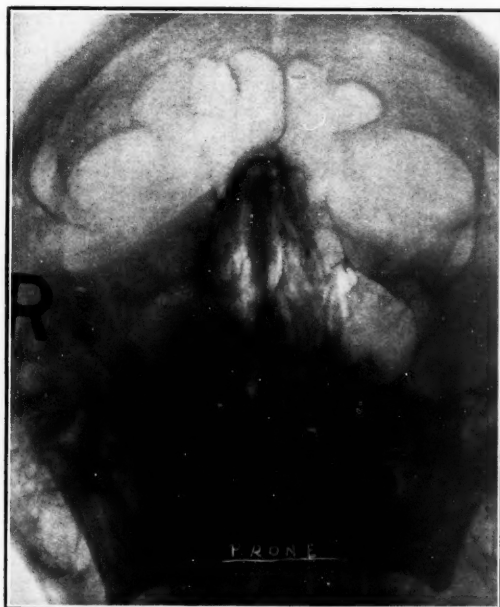


FIGURE III.
Patient prone. Marked hyperplasia of lining mucosa of right antrum. Remainder of antrum cloudy—possibly fluid.



FIGURE IV.
Same patient erect. Note concave upper margin of fluid level definitely indicating presence of fluid.

ILLUSTRATIONS TO THE ARTICLE BY DR. GARNET R. HALLORAN.



FIGURE V.
Vasomotor rhinitis. Negative skiagraphic reports.
Operative findings were polyposis of antra, ethmoids and
sphenoids.



FIGURE VI.
Skiagraphic dullness of right frontal sinus but no clinical
evidence of active sinus disease. Extensive frontal lobe
brain abscess.

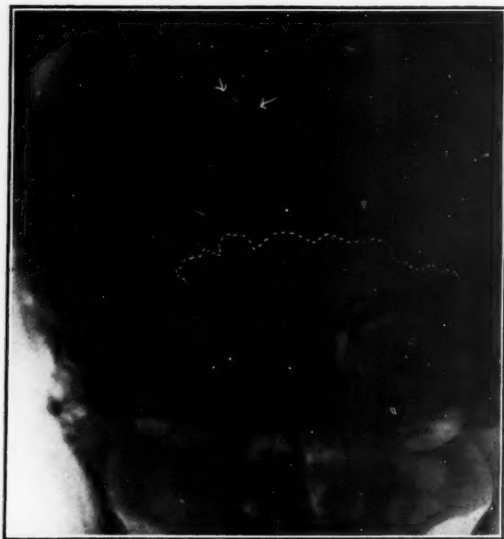


FIGURE VII.
Empyema of right frontal sinus and right ethmoidal
cells. Very early erosion of frontal bone at arrow
indicating preoperative osteomyelitis.



FIGURE VIII.
Same case. Diffuse spreading osteomyelitis of frontal
bones still advancing beyond operative field.

both sides with implantation of radium needles into the operation area, the latter also being followed by radium-at-distance treatment. In stage III cases, where the affected glands are enlarged and fixed to the underlying structures, surgery is held to be contraindicated and radium-at-distance alone is used.

EXCESSIVE UTERINE HÆMORRHAGE.

In the group of patients with excessive uterine hæmorrhage I include only those in whom the excessive hæmorrhage is not associated with gross pelvic lesions, such as fibromyomata and pelvic inflammation. The group includes a number of entities which formerly were classified as chronic metritis, chronic endometritis, *fibrosis uteri et cetera*. A more recent classification divides them into *metropathia hæmorrhagica*, epimenorrhœa, hypomenorrhœa, metrorrhagia and menorrhagia. Radium is said to give the best results in this group with two possible exceptions: (i) In *metropathia hæmorrhagica* curettage is sometimes successful, and (ii) in epimenorrhœa hysterectomy is indicated when fibroids are present in the uterus. The dosage of radium varies with the age of the patient and the effect to be produced. If the effect is amenorrhœa and the patient is forty years or over, the recommended dose is from fifty milligrammes of radium for thirty hours up to fifty milligrammes for seventy-two hours. Asherson has worked out a table of dosage, not complete, for the production of amenorrhœa and has divided the patients into five age groups. He claims that his findings support the inverse law of dosage which reads: "In a patient with a uterus of normal size, the younger the patient is, the bigger is the milligramme-hour dosage of radium element necessary to produce amenorrhœa." The grouping is as follows:

1. Age 46 to 50 years. One thousand two hundred milligramme-hours will always produce amenorrhœa.
2. Age 41 to 45 years. The required dose is between 1,500 and 1,800 milligramme-hours.
3. Age 35 to 40 years. The dose necessary to produce amenorrhœa is said to be above 1,800 milligramme-hours.
4. Age 31 to 35 years. The necessary dose is given as 2,000 milligramme-hours.
5. Age 20 to 30 years. A dose of 2,300 milligramme-hours can be given in this group without producing amenorrhœa.

It is noted that groups 3, 4 and 5, owing to the small number of patients and to the fact that amenorrhœa was not always the desired result, do not permit of an exact dose being given.

FIBROMYOMATA.

Fibromyoma is generally treated by surgical means, myomectomy or hysterectomy, in preference to radiological treatment. Polak, of New York, whom I had the pleasure of hearing at the seventh Congress of Obstetrics and Gynæcology in Dublin last year, gave his experiences in the treatment of

this condition. Two hundred and six patients were treated by radium, while in the same period nine hundred were subjected to operation, and he is clearly of the opinion that surgical operation is the treatment of choice. In his opinion radium is indicated in preference to operation when the condition is complicated by heart disease, diabetes, chronic nephritis and pronounced anæmia.

I have not mentioned Röntgen rays as a means of treatment when operation is contraindicated and my reason is not because they are not successful, but because they hardly come within the scope of the paper.

DYSMENORRHŒA.

Radium is being used for dysmenorrhœa with relief of symptoms, but it should be used with caution and only in patients whose dysmenorrhœa has proved intractable to the usual means of treatment. The dangers are that permanent amenorrhœa may result when not desired, and that a confinement following radium treatment may result in the production of a monster from damage to an immature ovum.

THE PRESENT POSITION OF RADIUM IN THE TREATMENT OF CANCER OF THE CERVIX.

At the moment there is not unanimity of opinion in regard to treatment of cancer of the cervix and my only contribution to a much vexed controversy will be to give the views of Bonney, a surgeon, on the one hand and those of Heyman, a radiologist, on the other.

Bonney makes the following statements:

1. Out of every four hundred patients seen with this condition, forty cannot be cured by radium alone on account of gland involvement, and forty are beyond surgical treatment on account of the involvement of parts operatively irremovable. But these two groups are not identical, some of the former group being curable by surgical means and some of the latter can be adequately treated by radium.
2. If the lymph glands did not become invaded by malignant cells, then radium would give better results than surgery.
3. If surgery were performed when the condition was operable and radium when it was inoperable, the absolute cure rate of such a group would exceed that of either surgery or radium separately.
4. One of the chief advantages of radium treatment is that when it cures it does not mutilate.
5. The same study and experience are not necessary to produce an expert in radium as are necessary in the production of an expert radical operator.
6. The results of radium treatment are much better than they were, but are still not so good as those obtainable by surgery, and so operable patients should be treated surgically while the remainder should be treated radiologically.

Heyman puts the other side to the question:

1. There is much less risk to the patient with radium.
2. Radiological technique is capable of improvement, whereas surgery has reached its zenith.
3. Morbidity after surgical treatment is greater than after radium treatment.
4. Radium treatment causes less temporary inconvenience to patients than does a major surgical procedure.
5. The palliative effect of radium apart from its curative effect is a big factor in its favour.

My final contribution to the subject is that the best results with radium are being obtained by completely equipped radiological clinics with highly trained and experienced staffs and it is doubtful whether anyone working under different conditions will be able to equal their results.

Heyman goes so far as to say:

In our experience it is of the utmost importance that the treatment of gynaecological cases should be left entirely in the hands of a gynaecologist trained in radiology. If radiotherapy is attached to a gynaecological department, the radiologist should have at his disposal an independent department equipped with all the technical resources of radiology with specially trained attendants and with a well organized department for the following up of the patients and for the preparation of statistics. Our view on this point has been confirmed by the course the development has taken in many different places.

Reports of Cases.

THE APPLICATION OF BIOCHEMICAL INVESTIGATIONS TO KIDNEY CONDITIONS.

By G. M. HAYDON, M.B., B.S. (Melbourne),
Macarthur, Victoria.

THE following two cases illustrate the advantages of biochemical investigations in kidney conditions.

Case I.

C.M., a married man, aged 51 years, sought advice at 4 p.m. on April 29, 1930, complaining of pains on the left side of the abdomen passing into the groin for the previous twelve hours. He gave a history of a similar condition on the right side five years previously. This had cleared up in a week after a passage of some gravel in the urine.

His temperature was 37.0° C. (98.7° F.), the pulse was irregular and its rate 104 per minute, the respiration rate was 20 per minute. The heart was of normal size; there was no bruits. The lungs were clear. There was rigidity of the abdomen, especially on the left side, and tenderness over the left loin. The prostate was not palpably enlarged. The systolic blood pressure was 120 and the diastolic 90 millimetres of mercury. The fundi appeared to be normal.

The urine was very small in amount and nothing abnormal could be detected in it. The salivary urea content was greater than 109 milligrammes per 100 cubic centimetres of saliva.

A diagnosis of ureteric calculus was made; he was sent home to bed and given a potassium citrate mixture, copious fluid by mouth and a hot water bag was applied to the affected side.

At 9 p.m. he had not passed any more urine, but seemed a little easier. Next morning he had passed a large amount of urine and felt much improved. His pulse rate was 80 per minute and its rhythm was regular. The abdomen was slightly tender, there was no rigidity and the salivary urea amounted to 45 milligrammes per 100 cubic centimetres.

About three days later he passed a small calculus about half the size of a pea.

On May 8, 1930, he was able to resume work. His salivary urea content was then 45 milligrammes per 100 cubic centimetres and he has had no symptoms since.

Case II.

F.W., a married man, aged forty-three years, complained on December 5, 1929, of excessive nose bleeding occurring for short periods during the previous two days. He had had no previous illness. The specific gravity of the urine

was 1025; the reaction was acid; albumin was present, but no sugar. The salivary urea content was 80 milligrammes per 100 cubic centimetres. No other abnormality was detected.

His nose was plugged; he was sent to bed and given fluids and carbohydrates by mouth. Drug treatment consisted of an iron mixture and purgatives. The plugging was removed next day and the bleeding recurred twice in the next two days; about 60 cubic centimetres (two fluid ounces) of blood were lost on each occasion. His nose did not bleed again; his general condition improved; examination of the nose revealed no abnormality.

On December 14, 1929, his general condition was much better, his urine had a specific gravity of 1020 and contained albumin, but no sugar. His salivary urea content was 40 milligrammes per 100 cubic centimetres of saliva. When seen again on March 8, 1930, his condition was much the same.

He returned on July 30, 1930, with a history of nose bleeding for one week, despite home treatment. He stated that he had tired of white meats and small amounts of fat meat, and had eaten heartily of roast hare on several occasions. Examination revealed a condition similar to that found previously, except that the initial salivary urea content was 37 milligrammes per 100 cubic centimetres.

Treatment on the same lines as used previously was instituted, and his nose bleeding ceased in one week. On August 9, 1930, his salivary urea content was 22 milligrammes per 100 cubic centimetres.

On September 1, 1930, his pulse rate was 80 per minute, systolic blood pressure 125 and diastolic 90 millimetres of mercury; the salivary urea content was 37 milligrammes per 100 cubic centimetres. He felt fairly well at this time, but was unable to do heavy work.

On September 29, 1930, no abnormality was detected at the examination of his heart, lungs and nervous system. The pulse rate was 68 per minute; the systolic blood pressure was 135 and the diastolic 100 millimetres of mercury; the salivary urea content was 30 milligrammes per 100 cubic centimetres; the urea had a specific gravity of 1020 and was acid in reaction; it contained no albumin and no sugar. When the urea concentration test was applied one hour after ingestion of 15 grammes of urea, 90 cubic centimetres (three fluid ounces) of urine were passed containing 1.375% of urea. At the end of two hours 75 cubic centimetres (two and one-half fluid ounces) of urine were passed, containing 1.3375% of urea. His salivary urea content was estimated and found to be 51.8 milligrammes per 100 cubic centimetres.

He is continuing on a diet low in protein, as obviously he is unable to excrete products of protein metabolism. He is returning at intervals of one month for examination.

Comment.

These two cases are chosen to show the use of biochemical tests, especially the estimation of the salivary urea content. This test can be carried out quickly and easily and is an efficient aid to diagnosis and treatment of many conditions.

The first report illustrates the occurrence of anuria following impaction of a ureteric calculus, the retention of products of metabolism in the body, and the rapid excretion of those products following passage of the stone into the bladder.

The second case is an example of Nature's method of dealing with chronic nephritis by bleeding. By estimating the salivary urea content one can judge how much protein diet such a patient can take without raising the amount of the products of metabolism retained in the body.

Briefly, the estimation of the salivary urea content is carried out as follows: The patient is given paraffin wax to chew. The first eight to ten cubic centimetres of saliva are discarded and the second eight to ten cubic centimetres kept. Of this, five cubic centimetres are titrated against a 5% solution of mercuric chloride. The end point is shown by an immediate reddish brown precipitate on adding a drop of the mixture to a saturated solution of sodium carbonate. The probable blood urea content equals ($s \times 1.43$) - 34, where "s" equals the amount of mercuric

chloride solution required for 100 cubic centimetres of saliva.

The blood urea content can be determined similarly by Hensch and Aldrich's method, using the abovenamed materials, and precipitating the proteins of blood by adding ten cubic centimetres of trichloroacetic acid to ten cubic centimetres of oxalated blood.

These methods place a useful diagnostic aid in the hands of every energetic medical man, though the results can be expected in most instances by close clinical observation. The results give an added sense of security in one's treatment.

Bibliography.

A. B. Corkhill: "The Estimation of the Salivary Urea as an Index to Renal Prognosis," *THE MEDICAL JOURNAL OF AUSTRALIA*, March 7, 1925.

Keith D. Fairley and Beryl Splatt: "A Simple Technique for the Estimation of the Blood Urea: The Hensch-Aldrich Method," *THE MEDICAL JOURNAL OF AUSTRALIA*, May 8, 1926.

TWO ACUTE OTO-RHINOLOGICAL INFECTIONS.

By E. P. BLASHKI, M.B., Ch.M. (Sydney),

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Scarlet Fever, Bilateral Mastoiditis and Right-Sided Bezold's Abscess.

C.H., A FEMALE child, aged fourteen months, was admitted to the Royal North Shore Hospital on March 19, 1930. She had been suffering from scarlet fever for a period of two weeks and both her ears had been discharging pus for seven days. A swelling in front of the right ear had been incised the day prior to admission and some pus had been evacuated. There was a large, tender swelling which extended from behind the right ear to the neck. There was oedema which extended towards the parietal area and the right orbit. The child was extremely weak and ill.

At operation necrosis of the tip of the right mastoid process was found. The mastoid cells and necrotic tissue were removed. A further incision was made behind and below the mastoid process; pus drained from this wound. A rubber tube was inserted.

On March 21, 1930, mastoidotomy was performed on the left side. Pus and granulations were found.

The child's temperature was of a hectic type and the wounds were more or less dirty until April 8, 1930, when improvement commenced.

On April 30, 1930, the wounds on the right side were curetted and granulations and sequestra were removed. Since then there has been continuous progress. A few sequestra have separated. All wounds have now healed, but there is some intermittent foul discharge from each ear.

Comment.

Bezold's abscess is, of course, due to the escape of the mastoid suppuration through the tip of the mastoid process to pass into the neck along the sheath of the sterno-cleido-mastoid muscle. In this instance the diagnosis and indications for treatment were obvious. It is worthy of note that Politzer remarks that Bezold's abscess occurs almost exclusively in adults.

Fulminating Frontal Sinusitis.

T.V.G., a male patient, aged twenty-eight years, was admitted to the Royal North Shore Hospital on July 16, 1929, when he complained that he had suffered from severe frontal headache for a period of one week. He gave no history of having suffered from nasal discharge, but had had a "cold" for two weeks. He had noticed a swelling of the forehead and the left eyelids the previous evening. He had vomited on the two evenings prior to admission. The patient appeared to be in pain. His mental state was confused and he was very irritable. There were pronounced

red swelling of the left upper eyelid and slight swelling of the lower lid. There was tenderness over the left frontal sinus and the left antrum. Pus could be observed in the nose below the left middle turbinal. By transillumination the left frontal sinus and the left antrum were observed to be dull. Nothing worthy of note was discovered in the examination of other systems.

The application of a solution of cocaine and adrenalin to the middle turbinal region resulted in some relief of pain. Later in the day the left antrum was punctured. Some pus under pressure escaped through the needle used for the puncture. The antrum was washed out.

On July 17, 1929, the swelling in the left upper eyelid had increased to such an extent that it was evident that pus was present in the orbit. An incision was made along the superciliary ridge, curving down on the frontal process of the maxillary bone. When the periosteum was separated, about four cubic centimetres of pus were found in the orbit in contact with the orbital wall of the frontal sinus. This wall was removed and the frontal sinus cleaned out by the use of sponges and gentle curettage. The ethmoid labyrinth was opened from in front and exenterated. A drainage tube was passed down into the nose from the wound, which was closed. An intranasal opening was made in the left antrum. The patient had improved on the day following operation. On July 19, 1929, his condition was satisfactory. Two days later a lot of pus was still draining from the antrum and a Caldwell-Luc radical operation was performed. At the same time the nasal tube was changed.

The patient suffered from diplopia which had disappeared on August 8, 1929. On August 10 he was discharged to the out-patients' department.

His general condition remained good and he returned to his work, but there was a persistent discharge from a small fistula at the nasal end of the wound. He was therefore readmitted and on September 20, 1929, submitted again to operation. The wound was reopened. The left frontal sinus was found to be filled with pus and granulations. The orbital plate was necrotic and was removed with difficulty. The *dura mater* thus exposed had an unhealthy appearance, but proof puncture did not disclose the presence of pus. There was a perforation of the interfrontal septum; therefore the incision was carried across to the outer limit of the right frontal sinus, the anterior and superior walls of which were then removed. The contents of the right frontal sinus were wiped away with swabs. The cavity was treated with bismuth, iodoform and paraffin paste and packed with iodoform gauze. The wound was left wide open. Subsequent treatment was aimed at the obliteration of the frontal sinus cavities. The patient was discharged to the out-patients' department on October 18, 1929.

A small plastic operation was done on December 6, 1929, for the purpose of better approximating the edges of the wound, but the patient has been very well since the operation of August 20, 1929.

Comment.

This was an instance of extremely acute sinusitis. The method of procedure was that advocated by Hajek, but it would have been better to have left open the wound in the left frontal sinus from the first as advocated by Godsall and Marsh. The amount of damage observed in the frontal sinus on reopening the wound was most extraordinary in view of the patient's good general condition and the small fistula. Godsall's work shows this to be not unexpected.

Reviews.

THE USE OF RADIUM IN CANCER.

THE subtitle of Duncan C. L. Fitzwilliams's book will of itself provoke criticism. In no country outside France has the term *curietherapie* passed into the currency of medical language; it is certainly not needed in English;

nor is it likely that the use of this term in France has the sanction of Madame Curie. The discoverer of radium and polonium did not seek to commemorate her name in the newly discovered elements, and she revealed the correct attitude of the scientist when she refused a decoration of the Legion of Honour because her late husband had been opposed to all honorary distinctions.

This book by Fitzwilliams is the third of recent English publications on radium therapy and in many respects the one most open to criticism.¹ Methods of treatment are advocated which with riper experience have been discarded. There is wanting all through the volume a fine appreciation of the type of new growth suitable for radiation therapy. This is specially to be seen in the chapter on the treatment by radium needles of "growths low down in the rectum." Neumann and Coryn, the Belgian authors of the combined method of radium therapy and surgery in the attack on rectal carcinoma, are at great pains to lay it down that the method should be reserved for inoperable cancers of the ampulla, and more particularly for those situated posteriorly or postero-laterally. In the operable cases surgery is still the most valuable arm. No reference is made to this by Fitzwilliams; nor is any mention made of the hæmorrhages, the pain, and the slow cicatrization which may complicate the embedding of radium needles in this region.

Similarly, in the treatment of malignant glands of the neck the "buried" technique is recommended, although no lasting cures from this method have ever been recorded. Regaud's dictum should be written large, that "*dans ces adénopathies seules jusqu'ici la chirurgie a donné des survies éloignées.*" The simultaneous treatment with radium of the malignant glands and the primary lesion in the tongue is held by the French school to be a grave error in technique since massive radio necrosis may follow the secondary radiations set up by cross-firing; the bone itself burns and burns the soft tissues around.

A danger exists in radium therapy from the ill-balanced enthusiasm which its practice evokes, most of all in some surgeons. No doubt the new method is embraced as an escape from the mutilations of cancer surgery. But there are disappointments and pitfalls awaiting those who without proper discrimination and without an intimate knowledge of the failures and mistakes which are commemorated in the literature recklessly undertake this form of radiation treatment.

Our present need is for a book written without partisanship which will enumerate the types of growth and the associated conditions which positively contraindicate the use of radium.

THE TREATMENT OF PULMONARY TUBERCULOSIS BY SURGICAL METHODS.

The literature on thoracic surgery grows apace. On the surgery of pulmonary tuberculosis there are several large books written in English, some of which can be considered standard works of reference. Dr. Bernard Hudson in the space of a little more than one hundred pages has written what may be considered as an introduction to those seeking knowledge of the extraordinary advance that has been made in this century in the treatment of pulmonary tuberculosis by surgical methods.² This book is one of a series dealing with "Modern Treatment" written in order that guides may be given practitioners to the "present treatment of groups of sick persons," as the general editor, Dr. F. G. Crookshank, happily expresses it.

¹ "Radium and Cancer (Curiotherapy)," by Duncan C. L. Fitzwilliams, C.M.G., M.D., Ch.M., F.R.C.S.; 1930. London: H. K. Lewis and Company Limited. Demy 8vo., pp. 180, with eight plates (four coloured) and sixty-four illustrations in the text. Price: 12s. 6d. net.

² "The Surgical Treatment of Pulmonary Tuberculosis," by Bernard Hudson, M.D., M.R.C.P.; 1930. London: Jonathan Cape; Sydney: Angus and Robertson. Crown 8vo., pp. 128. Price: 5s. net.

It may be said at once that this booklet fulfils this purpose. Dr. Hudson writes largely from the fruits of his own wide experience, partly culling from that of others. He traverses the field briefly, but adequately, from the point of view of the practising physician; thus he escapes the criticism which might be applied to some of the larger books, of writing with a surgical bias. One half of the book is devoted to artificial pneumothorax. The remainder deals with the division of adhesions, thoracoplasty, *plombage* (more commonly called apicolysis) and phrenic avulsion. The author writes dogmatically, which is justifiable in a book of this size. But in his desire to condense he is at times not wholly consistent. The following statement is one which will find him many critics: "Artificial pneumothorax is contraindicated where there is tuberculosis in other organs, especially the intestines, larynx or kidneys." Tuberculous laryngitis is well known as reacting very favourably to collapse therapy. There is a needless repetition of the indications for and against thoracoplasty.

Inasmuch as the book cannot be considered as a manual or guide for those intending to carry out any of the forms of treatment that are discussed, the author might with advantage and without loss of prestige, have offered a bibliography of larger works on the same subject, for the benefit of those desirous of dipping more deeply. These, however, are minor criticisms. This is a very readable little book, which could be perused with interest and profit by the general practitioner or the specialist in any field. With a concise two-hour booklet such as this available, there should be no longer any excuse for any medical man being unaware of the indications for, and the great potentialities of, the surgical treatment of pulmonary tuberculosis.

Notes on Books, Current Journals and New Appliances.

THE "A.P.F."

The fifth edition of "The Australian and New Zealand Pharmaceutical Formulary" has been published. This work, originally known as the "Australasian Pharmaceutical Formulary"—the "A.P.F."—was compiled in order "to place at the disposal of medical practitioners a series of formulæ for medicinal preparations which, although unofficial, were largely prescribed, and at the same time to place in the hands of pharmacists working formulæ for these preparations." In the present edition new formulæ have been added and an effort has been made to standardize types of well known preparations varying in minor details. By the use of the letters "A.P.F." in prescriptions these standards will be attained. The price of the book is three shillings and sixpence.

AIDS TO DIAGNOSIS.

In September, 1928, the editor of *The Lancet* started the publication of a series of articles intended to assist in assessing the clinical interpretation of various aids to diagnosis. The articles were contributed by special request, the authors being either specialists known to have keen appreciation of practical needs, or persons known to have helped in the establishment of the significance of certain tests. Many of these articles have been collected and published in a volume.¹ The book is somewhat similar to that published by *The Lancet* in connexion with articles on treatment which many of our readers will remember. This book is likely to prove to be of definite value to practitioners, for the significance of clinical and laboratory findings is often difficult of determination. It can be most warmly recommended.

¹ "The Clinical Interpretation of Aids to Diagnosis," Volume I, 1930. London: *The Lancet* Limited. Demy 8vo., pp. 388, with illustrations. Price: 10s. 6d. net.

The Medical Journal of Australia

SATURDAY, DECEMBER 13, 1930.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

AUSTRALIAN MEDICINE AND THE WAR.

THE publication of the first volume of the "Official History of the Australian Army Medical Services in the War of 1914-1918," recently received, represents the beginning of the last act of the part played by Australian medicine in the theatre of the Great War; the curtain will fall with the appearance of the second volume. When the curtain went up in August, 1914, on the greatest tragedy of modern times, Australia voluntarily undertook a definite rôle and thereby won recognition as a nation among the Commonwealth of British peoples. The share taken by the medical profession of the Commonwealth was not a small one. It is obvious that unless some official record were kept of the successive steps taken in the venture, of the reason for these steps, of the mistakes, the failures and the successes, much of the hardship, sacrifice and suffering would have been in vain. This may be looked upon as a national reason for the publication of an "Official History." The personal appeal of such a history must also be considered.

The "Official History" has been published under the editorship of Colonel A. Graham Butler. Colonel Butler who was engaged in medical practice in Brisbane, gave up his practice after the end of the war in order to act as official war historian.

He has earned the gratitude of the medical profession and of the whole community and is to be most heartily congratulated on the result of his labours. In the first volume he has dealt with the Gallipoli campaign, the campaign in Sinai and Palestine and the occupation of German New Guinea. In the second volume the campaign in France will be considered, as well as the parts played by the Navy and the Air Force. The section on Sinai and Palestine has been written by Colonel R. M. Downes and that on New Guinea by Colonel Maguire and Captain R. W. Cilento. The book opens naturally with a short account of the organization of the medical services before the outbreak of war. There is also included a short description of the organization of the medical service of a field force in the British Army at this time; this is essential to the story that follows. The story of events after August 4, 1914, is that of the development of the Australian Army Medical Services into a composite and efficient unit. It is inseparably linked with the similar development of the Australian Imperial Force. The development was neither calm nor uneventful. It cannot be traced in this place, but its history makes excellent reading. The faults of no one are glossed over, neither are they emphasized. The story itself shows up the inefficient, so that no apportionment of blame is necessary. Many mistakes were, of course, inevitable, but progress was made when men of vision and determination insisted on their demands. Eventually the Australian Army Medical Corps gained self government. An account of the illnesses and wounds treated at Gallipoli is given with statistics and graphs; the importance of pathological study and research in an army campaign is rightly emphasized. The work of the Australian Army Nursing Service receives due mention and particular reference is made to the hardships of the nurses at Lemnos, to their courage and zeal and to the way in which they overcame their difficulties. It is not necessary to describe this book in further detail.

In commending the book with much earnestness to our readers, we would refer again to the personal and national points of view. Those who served with the Australian Imperial Force should certainly

possess a copy. They will be able to follow the train of events in which they played an active part; in letterpress, pictures and maps they will revive an interest in the work they shared; they will see it in its proper perspective; they will have a permanent record for reference. Many will find their names and records in the "personal index" at the back of the book. Looked at from the wider point of view, the "Official History," in conjunction with the non-medical volumes of Australian war history, may be used as anti-war propaganda. We have referred to the war as a tragedy, and such it surely was. It was the most colossal mistake of modern times. Nations do not desire war. The individuals making up the nation do not have a chance to determine whether they will go to war or not. The politicians do the deciding and the individuals of every participating nation soon become convinced that they are threatened or are being attacked and that they alone have right on their side. There could be no better propaganda for such an organization as the League of Nations than the official histories of all the nations participating in the Great War. There may come a time when nations "shall beat their swords into ploughshares and their spears into pruning hooks" and when "nation shall not lift up sword against nation, neither shall they learn war any more"; but there are no signs that this time is at hand. The passions of man have not altered—universal brotherhood is not yet. Australia will not seek war; she may be forced into it. The lessons learned in the Great War will then stand her in good stead; the medical services will not need such a long probationary period before they reach efficiency—this "Official History" will not have been written in vain. There is ample justification for the statement made previously in these pages, that the publication of the "Official History" is an event of the first importance to Australia.

Current Comment.

COGWHEEL BREATHING.

NOWADAYS there are available so many aids to diagnosis and so many biochemical, bacteriological and serological methods that the value of clinical

observation is apt to be underestimated, and physical examination is in danger of becoming a lost art. The clinicians of yesterday had perforce to rely on their senses only. But their senses were tuned to a pitch of keenness which is sometimes regarded as unnecessary in these days of electrocardiographs, sphygmomanometers and X rays. Some of these various apparatus are of incalculable worth; the X rays no doubt hold pride of place. But it is a mistaken conception of relative values to attach to radiographical findings an invariably greater importance than to clinical examination. Even in the diagnosis of pulmonary tuberculosis, the domain in which the radiologist holds sway and the clinician is often looked upon as but a minor subject, or at best the court messenger, clinical investigation is of primary importance. It is therefore refreshing to learn that somebody is sufficiently interested in the advancement of the physician's art as to endeavour on scientific lines to elucidate the cause of a clinical manifestation.

There has been considerable diversity of opinion regarding the significance of that abnormality known variously as "cogwheel breathing," "interrupted breathing," "jerky breathing" or "*respiration saccadée*." All observers agree that cogwheel breathing may sometimes merely be due to nervousness, but many place some reliance on it as a sign of early tuberculosis. The phenomenon has been regarded by some as due to irregular expansion of the alveoli when the elasticity in different parts of the lobule is unequal. It is heard most frequently during auscultation over the lower lobe of the left lung towards the base; this in itself appears to suggest the probability that it is not usually due to a tuberculous lesion. Rivière notes that jerky breathing is often observed in healthy chests and is frequently due to cardiac excitement; he regards it as of some significance when it is strictly localized, for example, at one apex, and accompanied by other signs suggestive of pulmonary tuberculosis.

G. T. Herbert who, as physician in charge of the tuberculosis department at Saint Thomas's Hospital, speaks with some authority on manifestations of lung disease, has recently made a careful investigation of the causes and significance of cogwheel breathing.¹ He divides cogwheel breathing into two kinds. The first is uncommon, consists of irregular jerks and is heard only when the patient breathes deeply; it appears to be due to irregular action of the respiratory muscles and could not be ascribed to any pulmonary or pleural lesion on any occasion on which he observed it. The second type is common and consists of regular waves which are synchronous with cardiac systole. These "air-waves," as Herbert terms them, are heard during inspiration and only rarely during expiration. That they are not cardiac in origin may be shown by their disappearance during expiration or when the patient holds his breath. They are heard best near the angle of the left scapula or in the axilla. Sometimes they may

¹ *The Lancet*, September 20, 1930.

be heard on the right side as well. "Air-waves" were found by Herbert during the examination of 375 in a series of 1,000 patients, 292 of whom were affected by pulmonary tuberculosis. Examination of 154 of the tuberculous patients revealed the existence of "air-waves" as against 221 of the 708 patients in whom there was no evidence of pulmonary tuberculosis. Herbert suggests that though "air-waves" appear to be more pronounced when fibrosis is present, their higher incidence among people affected with pulmonary tuberculosis in his series may have been due rather to the more forcible cardiac action of tuberculous people. He suggests that "air-waves" are actually due to the rhythmical occurrence of ventricular systole with the consequent decrease in volume of the thoracic contents and decrease in intrathoracic pressure, hence increase in expansion of the lung tissue. His experiments on patients in whom artificial pneumothorax had been induced, revealed that in all instances a decrease in intrathoracic pressure occurred with each contraction of the heart; sometimes this amounted to as much as three or four centimetres of water. The rhythmic reduction of pressure was most pronounced when the collapse of the lung was complete and when the mediastinum was rigid; it was not so readily observed on the right side as on the left.

Fluctuations of pressure in the inspiratory and expiratory currents of air were demonstrated by means of a manometer attached to a lead from a Douglas mask; the rhythmic increases in pressure synchronized with the apex beat of the heart. Herbert assumes that these fluctuations in pressure mean fluctuations in velocity and hence fluctuations in the intensity of the breath sounds heard on auscultation. Exercise resulting in more forcible cardiac contraction caused the "air-waves" to be more plainly heard. At the examination of people affected with valvular disease and hypertrophy of the heart "air-waves" were heard no more frequently than at the examination of people not so affected. On these grounds Herbert bases his view that "air-waves" are merely a physiological phenomenon the recognition of which may be possible in some instances by hearing cogwheel breathing during auscultation. In some instances "air-waves" can barely be distinguished, in others they are very striking. There are varying grades of intensity between the two extremes. Fluctuations in the pressure of the respiratory air were invariably found and Herbert suggests that "air-waves" would invariably be heard at auscultation if the auscultatory test were sufficiently sensitive. In discussing the differential diagnosis he suggests that many murmurs regarded as exocardial murmurs or pleuro-pericardial friction sounds may actually be due to "air-waves." On the other hand certain vascular sounds may possibly be confused with "air-waves"; murmurs of vascular origin may sometimes be heard below the clavicle towards the end of inspiration; they arise from the subclavian artery.

Herbert's conclusions appear to be logical and his explanations feasible. Certainly he has provided no adequate reason why "air-waves" should be heard at the examination of some patients and not others, but many possible reasons may readily be conjectured while the theory of causation remains unaffected. A good deal of investigation remains to be done. Much may be learnt by a careful study of chest measurements, the physical type of the individual, the radiographic appearances of lungs and mediastinum *et cetera*. In the meantime the possibility that cogwheel breathing may have some pathological significance should not be finally discarded.

HENOCH'S PURPURA.

In his article on the diagnosis of intussusception contributed to this journal in July of this year, P. L. Hipsley pointed out that Henoch's purpura has often been diagnosed as intussusception because of the passage of blood and the occasional presence of a palpable tumour, together with the absence of a raised temperature. He pointed out that in Henoch's purpura there is generally some swelling of certain joints and that there is usually evidence of purpura elsewhere, generally in the form of petechial hæmorrhages. Both physicians and surgeons attached to large children's hospitals have had experience of the difficulty of making a diagnosis between these two conditions, though in the average general practice the difficulty does not so often arise. Hamilton Bailey has recently discussed "purpura as an acute abdominal emergency."¹ He gives details in a table of sixteen cases from the literature, in which laparotomy was performed and hæmorrhage into the wall of the intestine was found. In nine of these a diagnosis of intussusception was made; three of the patients died. Appendicitis was diagnosed three times, intestinal intussusception once and perforated gastric ulcer once. In two instances no diagnosis was made. The ages of the patients ranged from five to fifty; only five were under ten years of age. In another table particulars are given of fourteen cases in which intussusception complicated purpura. In one patient the conditions occurred together twice.

In regard to the diagnosis, purpuric spots are sometimes mistaken for flea bites. This mistake should not occur. The extensor surface is affected more than the flexor surfaces in purpura. The tourniquet test is helpful. (In this test petechiæ appear distal to the area constricted by the tourniquet.) Sometimes the abdominal symptoms precede the rash and in these circumstances it may be impossible to make a diagnosis; exploratory laparotomy will then be necessary. The concurrence of intussusception and purpura is rare. There may be reasonable grounds for suspecting that both conditions are present; it will then probably be safer to operate.

¹ The British Journal of Surgery, October, 1930.

Abstracts from Current Medical Literature.

PÆDIATRICS.

Hypertrophic Pyloric Stenosis.

K. STOLTE (*Deutsche Medizinische Wochenschrift*, November 29, 1929) discusses the various theories for the causation of hypertrophic pyloric stenosis, the occurrence of which is now readily recognized. Despite the extensive literature on the subject, very little has been of value so far in offering an explanation of its ætiology. Two opposing theories have been put forward in the past, the one asserting that the lesion is due to a primary spasm which is followed by hypertrophy, the other that the hypertrophy is an inborn error which brings on a secondary spasm. He considers both these theories unsatisfactory for many reasons, nor can he find any solace in the recent hypothesis of Vollmer and Serebryski that the spasm is due to an alkalosis following loss of acid by excessive vomiting, because the vomiting occurs long before there is any alteration of the acid-base equilibrium. He then elaborates an entirely different explanation and one which takes into account the facts that in about 85% of instances the condition occurs in boys, often it tends to regress spontaneously, and the hypertrophy is limited to the plain circular muscle fibres of the pylorus, though those of the antrum and even the duodenum may be involved on occasions. A similar state of affairs is found in the uterus of a female infant at birth. It is greatly hypertrophied, being equal in size to that of a seven years old girl, and regresses during the first year of life. This development occurs independently of the other genital organs and is due to the same growth-promoting substances or hormones which cause the great hypertrophy of the muscle fibres of the uterus of the mother and is transmitted to the fœtus *via* the placenta, along with products of the maternal thyroid gland, immune bodies *et cetera*. These substances act specifically on the smooth muscle; in girls they would naturally select the uterus, but in boys they would have to choose another site, for example, the pylorus. Individual idiosyncrasy would account for the rare exceptions. He offers no explanation as to the origin of these substances, beyond suggesting that they are produced from one of the many kinds of internal secretory glands. This theory also accounts for the facts that the condition is especially frequent in breast-fed infants and that it increases in frequency up to the end of the second month from birth, because the same substances would be secreted in the milk until the maternal uterus had completely involuted. Then the exogenous influences would be removed and regression could occur. This transient and apparently inappro-

priate hypertrophy which only appears in plain muscle, its concurrence with analogous events in the maternal organism and the cessation of the growth impulse as soon as the maternal uterus has involuted, make it apparent that here exist certain connexions which can influence predisposed individuals more powerfully and cause pathological effects.

The Treatment of Juvenile Rheumatism.

N. GRAY HILL (*British Journal of Children's Diseases*, April-June, 1930) reviews the methods of treatment of over 500 convalescent children in the rheumatic wards of Queen Mary's Hospital, Carshalton. Adequate rest is placed as the first essential, preferably in an institution, under good hygienic conditions. The majority remain for six months or more, three months of which are spent in bed, usually recumbent. He associates the severer cardiac lesions in boys than in girls with the difficulty in keeping the former at absolute rest. The children are only allowed up by very gradual degrees and are usually transferred to a seaside home, still under medical supervision, ultimately to reenter the main hospital for a final review before their discharge. Even then they are periodically reexamined by school medical officers or at rheumatic clinics. As a clinical guide to these stages the pulse is invaluable. Its rate should not rise above 100 per minute at any phase if progress has been satisfactory, due regard being given to the individual differences in pulse rate. Prolonged pyrexia is too rare to be a satisfactory guide. Regular school work while the child is still in bed is a most important aid in management. The teacher should be carefully selected. Diet should include at least a pint of milk daily, with butter and cod liver oil in order to supply an abundance of calcium and animal fats, which are frequently lacking in the children's homes. Under this diet they gain weight rapidly. Heliotherapy in the summer and ultra-violet irradiation in the winter are employed, and while their influence is not marked or rapid, they are apparently beneficial. Calcium salts, often combined with parathormone, have been given regularly. Tonsillectomy is discouraged as a routine treatment, and only a few selected patients are submitted to the operation. Salicylates and tolysin are not given except in the rare acute recurrences with much pain and pyrexia. Potassium iodide has occasionally been of benefit in vague rheumatism with "growing pains." Arsenic has been discarded in the treatment of chorea. Similarly, thyroid extract was found to be of very doubtful value. Tonics and sedatives are employed when their use is indicated. Vaccines and antisera of the *Streptococcus cardioarthritidis* were employed without benefit. Clothing is reduced to a minimum during the summer and only just an adequate

quantity is worn during the winter. The fresh air and exposure seem to be highly beneficial.

The Treatment of Empyema by Aspiration.

CHAS. MCNEIL (*The Practitioner*, July, 1930) publishes his results from the treatment of empyema in young children by means of aspiration *plus* cannula drainage. Aspiration is performed three or four times over a period of about two weeks. If more than thirty cubic centimetres of pus are still obtained, then a short silver cannula with a bore three or four millimetres in diameter and fitted with a collar is passed between the ribs by means of a trocar and secured in place by gauze soaked in collodion. A piece of tubing about twenty-five millimetres in length is fitted to the cannula and clipped or stoppered. Pus is aspirated once or twice daily, according to its quantity, and the tube at once closed again. On each occasion five to ten cubic centimetres of a 1% solution of iodoform in sterile paraffin are injected after the withdrawal of the pus. After seven to fourteen days, when the amount of pus is reduced to ten cubic centimetres daily, the cannula is removed and open drainage obtained by a narrow tube passed deeply into the pleura, and finally removed when the discharge becomes thin and scanty. The residual cavity can be outlined by "Lipiodol." The author has used this method in sixty-one instances since 1921, in all types of empyema in children. The majority were pneumococcal in type. There was a high proportion of acute and very sick children. There were eighteen deaths, of which fourteen occurred in the first two years of life. The author emphasizes that the principal factor in empyema is not the presence of pus in the pleural cavity, but the condition of the lung deep to the pus and the general state of the child. He doubts whether empyema is more deadly in the first two years of life than later, but the high death rate is due rather to the deadly nature of pneumonia at this period of life. If pus could be emptied from the pleural cavity without danger to the lung, the right treatment would be thorough surgical drainage. Closed drainage is more likely to prevent mixed infection and favour reexpansion of the lung. In the author's series there were twenty-one patients under the age of two years; of these ten died, but in four instances bilateral disease existed. There were twelve patients in the third year of life, one of whom died. There were twenty-three patients aged from three to twelve years, two of whom died. The method requires time and vigilance, but causes a minimum of shock and pain with most satisfactory after-results.

Bronchial Asthma in Children.

J. A. CLARKE AND EDWARD F. BURT (*Archives of Pediatrics*, June, 1930) report the results of skin tests in 220 children of all ages from the

Asthma Clinic of the Jefferson Hospital, Philadelphia. The intradermal technique was used in preference to the scratch test. The risk of occurrence of severe constitutional reactions by this method was minimized by preliminary testings with highly dilute solutions and checking a negative result with stronger solutions; Cooke's quantity of one one-hundredth of a cubic centimetre was invariably used. They insist that the solution must be first tested in a known sensitive individual, the needles clean and the point visible through the skin before the injection is made. The test must be read every ten minutes. All positive results were confirmed by a second test a week later. A maximum of eight tests is all that should be done in one day. In children under six years they found a higher percentage of moderately positive than strongly positive reactions. In older children the reverse obtained; 90% of positive reactions were obtained to only seventeen different common substances, while 80% were obtained with eleven substances. House dust extracted from a vacuum cleaner gave the greatest number of positive results; in 10% of children it was the only positive result obtained. Food tests are made only when specially indicated. Results were generally poorer with children suffering from continuous asthma. Those with intermittent asthma were divided into groups, those with or without a preliminary cold. The latter are wholly allergic in origin. Some of the cases with cold are also allergic, but their resistance prevents the onset of asthma for some days. The discovery of nasal disease in a child with frankly positive test results makes very little difference in their treatment, but they regard it as a complication which frequently clears up spontaneously with successful treatment of the underlying allergic cause. They conclude further that asthmatic children either die young or have a spontaneous cure, which takes place before the twentieth year.

ORTHOPÆDIC SURGERY.

Recurrent Fracture of the Humerus.

C. L. WILMOTH (*The Journal of Bone and Joint Surgery*, January, 1930) describes an instance in which a patient who had a spiral fracture of his right humerus from pitching a ball and who underwent uneventful recovery, experienced a similar, though quite distinct, fracture in the same bone and almost in the same location about eleven months later due to sudden extreme violence.

Epicondylitis Humeri.

K. G. HANSSON AND I. D. HORWICH (*Journal of the American Medical Association*, May 17, 1930) consider that epicondylitis exists in two forms: one acute form, such as is seen in the tennis elbow, and one chronic

form, which is usually occupational. The pathology is probably that of a periosteal avulsion with a myofascitis. In the real tennis elbow the periosteal symptoms predominate, while in the occupational type the myositis is worst. They consider that no treatment is of any avail unless the extensor muscles from the external condyle are relaxed, and that the best splint for such a purpose is the cock-up splint.

Cysts of Long Bones of Hand and Foot.

HARRY PLATT (*The British Journal of Surgery*, July, 1930) discusses cysts of the long bones of the hand and foot from the point of view of pathogenesis, clinical and radiographic signs, diagnosis and treatment. He finds that the phalanges of the hands are more frequently involved than the metacarpals and these more frequently than the metatarsals. The cysts originate in the growing ends and do not invade the epiphysis, in this respect differing from the giant-celled sarcoma which is almost unknown in the metaphysis. For practical purposes chondroma, myxochondroma and osteitis fibrosa comprise the whole morbid histology of the cysts in these bones and the differential diagnosis between these conditions is usually impossible on clinical and radiographic evidence alone. In both types of cyst spontaneous arrest or healing may occur, particularly in young patients, but when cysts are actively extending, or when the bone shell is perforated by fracture, exploration should be performed. The best treatment is to curette the contents and cauterize the interior of the cyst with pure carbolic acid. The insertion of one or more autogenous bone grafts hastens the obliteration of the cystic area.

Double Isolated Compression Fracture of the Spine.

C. C. SCHNEIDER (*The Journal of Bone and Joint Surgery*, July, 1930) reports three cases of double isolated compression fracture of the spine in which the fifth, sixth or seventh thoracic vertebrae were compressed in addition to the usual tenth or eleventh. He finds that twelve cases of double compression fracture have been reported in the literature and gives references.

Articular Synovial Membranes.

L. A. SIGURDSON (*The Journal of Bone and Joint Surgery*, July, 1930) discusses the minute anatomy and physiology of articular synovial membranes. He considers that the inner surface of articular capsules is not formed by a distinct membrane, but by the connective tissue modified as the synovial surface is reached, the cells being more closely packed and the nuclei exhibiting peculiar staining characteristics. He considers that there is no proof of the existence of stomata in the synovial membrane of the articular capsule. Foreign particles such as carbon, when

injected into the knee joint, evoked an inflammatory exudate which was most marked on the third day after injection. Some of these were removed by the action of phagocytic cells and remained in the subsynovial connective tissue for an indefinite period, others were taken up by the lymphatic vessels and deposited in the regional lymphatic glands. Ferric ammonium sulphate disappears from joint cavities within thirty minutes by way of the lymphatics, but iodine in the form of "Lipiodol" diffuses very slowly. The only definite effect of immobilization of the tibio-tarsal joints in rabbits was a reduction in the amount of synovial fluid.

Bilateral Lumbar Sympathetic Ganglionectomy and Ramisection.

W. McK. CRAIG AND G. E. BROWN (*Proceedings of the Staff Meetings of the Mayo Clinic*, July 9, 1930) report experiments in recurring varicose ulcers of the leg complicated with vasospastic conditions after bilateral lumbar sympathetic ganglionectomy and ramisection. They noticed a definite improvement in the oedema, complete relief of the aching distress in the calves of the legs, changes in the temperature of the feet which became warm, dry and comfortable, 50% decrease in induration of the skin and complete relief of stiffness in the feet. The volume of each leg was decreased after the operation and the authors attributed this fact to the improved arterial circulation assisting to remove the oedema.

Approach to the Hip Joint.

R. P. OSBORNE (*The British Journal of Surgery*, July, 1930) discusses a new route of approach to the hip joint. It is a combination of the Kocher and the Langenbeck methods and consists in a division of the *gluteus maximus* in the line of its fibres. The incision corresponds to a line just above the lower edge of the pyriformis muscle. The limb is then internally rotated and the tendons of the pyriformis and the gemelli are divided close to their insertion. The capsule of the joint is exposed and further exposure can be gained, if required, by retracting the *quadratus femoris* downwards and the *gluteus medius* upwards.

Fractures of the Os Calcis.

E. P. GILLETTE (*The Journal of Bone and Joint Surgery*, July, 1930) describes an apparatus for fractures of the *os calcis*. It consists of a steel pin which is inserted above the *os calcis* in the angle between the joint and the *tendo Achillis*. The leg and foot are immobilized in plaster of Paris and a quadrant removed to expose the heel. Extension brackets are then strapped on to the cast and fixed to the steel pin, sufficient extension being applied to force the posterior fragment into position which can be readily checked by radiographic examination.

Special Articles on Diagnosis.

(Contributed by Request.)

XXIII.

URETHRITIS.

WHEN a medical practitioner has reason to suspect that a patient may be suffering from an inflammation of the urethra or its adnexa, it is a matter of great importance to make an accurate diagnosis: First, as to whether the patient has the disease or not; secondly, whether the inflammatory condition is caused by the gonococcus or some other organism; and, finally, the stage and distribution of the inflammation require to be accurately determined.

An accurate diagnosis is an indispensable precursor to suitable treatment. But another consideration also arises, a consideration which places urethritis in a rather different category from most other conditions with which the physician is called upon to deal, namely, the question of safe marriage.

Before a physical examination is made, a careful history should be taken, attention being paid to any previous infection and the length of time since there were any symptoms or signs.

Usually, but not always, the gonococcus dies out within two years of the primary infection. There may be a history of inflammation of the posterior part of the urethra complicated by prostatitis, vesiculitis, epididymitis, arthritis or iritis, in which case particular attention should be directed to the examination of the posterior portion of the urethra and its adnexa.

Chronic vesiculitis, even when apparently cured, may leave a train of such symptoms as pains about the sacrum, testes, groins and inner surfaces of the thighs, which are worse when at rest.

The epididymis sometimes remains very indurated after infection and occasionally there is a history of recurrent epididymitis. Under these circumstances the complement fixation test may yield a positive result, signifying that the epididymis is not free from gonococci.

The next step is to note the method of treatment adopted in previous infections, since this may give some indication of the likelihood of a relapsing urethritis being present. The incubation period of gonorrhœa is two to ten days, while that of primary non-gonococcal infections is from ten days to six weeks.

Physical Examination.

Discharge.

The patient having presented himself with a full bladder, the urethra is gently massaged and a discharge looked for. If a discharge be present, it may be examined on a stained smear or by culture. Smears should always be stained by Gram's method and satisfactory cultures can be grown on 2% glucose serum agar. Undue reliance is, however, not to be placed on these procedures from a diagnostic point of view. In cases of chronic gonorrhœa the intermittency with which the gonococcus appears in the discharge is well known to those who are in the habit of looking for it. Moreover, while examination of a smear for gonococci may appear a simple enough procedure, it is not by any means free from possibility of error.

The Urine.

The urine is next passed into a urine glass and examined for the presence of shreds. It is important to understand the significance of these, for they show that an inflammatory process still exists. The culture of shreds may be undertaken in an attempt to isolate the gonococcus, but no deductions as to cure are to be assumed from it, because if shreds are present, the patient is uncured.

Rectal Examination.

The seminal vesicles and prostate gland are next examined *per rectum*. During this procedure the patient

should hold a beaker of water under the penis, in order to catch the expression from these glands. Any enlargement or induration is first noted and then an expression is obtained by systematic massage. An inflammatory condition of these glands can at once be recognized by the flakes or casts which are suspended in the water. A microscopical examination should also be made of the expressed drop. The presence of pus cells naturally indicates an inflammatory condition, but strangely enough gonococci are rarely detected. This fact does not suggest that these conditions are non-gonococcal, for sera from these patients usually react to the gonococcus complement fixation test.

Cowper's Glands.

The patient should then be placed in the lithotomy position and Cowper's glands palpated. When chronically enlarged, they may attain the size of a marble.

Instrumental Examination.

By Metal Sounds. The instrumental examination is in many ways a most important procedure. Nowadays it is generally accepted that there may be failure to make the diagnosis of urethritis without final dilatation of the urethra and urethroscopic examination. In my experience in the vast majority of patients in whom gonorrhœa relapses, the urethra has never been dilated. The urethral canal should be dilated to about number 24, French measure, the Clutton pattern of instrument being preferred. With the instrument *in situ* it is possible to palpate the canal and to feel any infiltration or indurated glands of Littre. These latter appear as seed-like bodies, usually situated on the dorsal wall of the urethra. Both these conditions are an indication for treatment, as they may at any time result in a relapse. The gonococcus frequently underlies stricture formations and therefore in these cases an opinion as to freedom from infectivity should be guarded. As there is sometimes an undue constriction at the meatus or neck of the *fossa navicularis*, it may become necessary, in order to dilate the urethra efficiently, to perform a meatotomy; this simple procedure may be carried out under local anaesthesia.

By Urethroscopy. The next step in the procedure is urethroscopy. An essential preliminary to urethroscopy is adequate dilatation of the urethra. This method of examination affords a most precise means of telling if the patient is liable to relapse. The Luys pattern of instrument is satisfactory, a straight tube being used for examination of both the anterior and posterior portions of the urethra. The mucous membrane of the posterior portion of the urethra reflects the condition of the adnexa and this fact is so striking that the *verumontanum* has been aptly named the "mirror of the seminal vesicle." Where abnormalities appear on its surface, it indicates an inflammatory condition in the adjoining vesicles. Infiltrations, strictures and cystic formations in urethral glands and sinuses may readily be seen, but the commonest and most important lesion is found in the anterior urethra in the form of chronically inflamed glands of Littre. These frequently occur in patients who otherwise appear to be cured, but they are nevertheless a potential source of relapsing gonorrhœa. If not surrounded by distinct inflammatory induration, they cannot be palpated; therefore, the only means of detecting them is by urethroscopy. Their presence is frequently not attended by symptoms or else these may be slight, in which case the usual complaint is of an occasional "pinprick in the pipe."

The Complement Fixation Test.

The complement fixation test should be regarded as a very important part of the examination. In order to interpret the test successfully one must regard a positive result as implying an efficient immunity response on the part of the tissues.

As the serum reaction may outlast the clinical cure by several weeks or longer, a positive result in a patient who has recently undergone treatment, is simply an indication to repeat the test later. But if the reaction is persistent, it means there is a focus of infection, usually in the posterior portion of the urethra. Under these circum-

stances, even if a first examination has not provoked a reaction, a more searching examination will usually reveal the existence of an inflammatory process. In some cases gonococci may remain in the seminal vesicles or in the tubules of the epididymis for many years. A failure to react on the part of a serum which, previously reacted, may be looked upon as strong presumptive evidence of cure.

If, however, only a single observation is available, a failure of the serum to react means, as a rule, either that the patient is cured or else that the focus of infection, if present, is confined to the anterior portion of the urethra.

It will thus be seen that the complement fixation test may yield most valuable information.

Gonococcal and Non-Gonococcal Urethritis.

A final word may be said on the differentiation of gonococcal from non-gonococcal inflammation of the urethra. Early gonococcal urethritis is attended by considerable tissue reaction; the *glans penis* is swollen, there is considerable purulent discharge, and the meatus is surrounded by a red areola.

Clinically, primary non-gonococcal urethritis is distinguished by a long incubation period, a scanty discharge and little or no tissue reaction.

On microscopic examination of smears of the discharge the causative organism is usually apparent. A gonococcus in smear is to be recognized not only by its shape, but by its characteristic grouping. In acute gonococcal discharges, most of the pus cells are free from organisms, but every twentieth or fiftieth cell is literally stuffed with them. Later on, the arrangement is less characteristic, as the organisms tend to become extracellular and involution forms occur.

At this stage secondary invaders may make their appearance. Therefore a plate culture may now give most information. The gonococcus may be definitely excluded by examination of smears, cultures, and by a number of observations of the gonococcus complement fixation test.

Non-gonococcal infections of the urethra may spread to the prostate gland, seminal vesicles and epididymis and in contradistinction to gonococcal infections, considerable danger is to be apprehended of extension to the bladder and pelves of the kidneys.

Primary infections of the urethra with organisms other than the gonococcus are in my experience most frequently due to the staphylococcus and *Bacillus coli*.

With inflammations which are no longer gonococcal, but secondary thereto, a variety of organisms may be associated, namely, staphylococci both large and small, Gram-positive diplococci morphologically resembling pneumococci, diphtheroids of both the Hofmann and xerosis type, and colon bacilli, to mention a few.

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British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, Dr. E. M. HUMPHREY, the President, in the chair.

Headache.

PROFESSOR A. E. MILLS opened a discussion on the causation of headache.

He prefaced his remarks with observations on the production of pain in general. He submitted the history

of a man, aged sixty-four, who complained of pain in one leg over a period of two years. The pain had a sudden onset and was localized over an area on the shin above the ankle, this area being of the approximate size of a five shilling piece. The patient had the feeling that he had received a severe blow on the leg. The pain increased from the moment of onset, and on the following day was so severe that he could not bear to place his foot to the ground. There was no pain in the foot. On the third day he experienced severe pain over the whole leg as far up as the knee. A sensation of "pins and needles" was associated with the pain, and though two years had passed this sensation remained. When he elevated the foot and leg above the body he experienced relief, though not completely; when the leg hung down he felt a burning pain along the shin, and when it was elevated he had the feeling that his skin was too close to a fire. He had been able to sleep at night, and when he woke in the morning he experienced no pain, though the shin remained tender. When, however, he commenced to move about, the pain returned. Physical examination revealed dulness to touch and to painful stimuli over the shin.

Professor Mills maintained that in such a case there could be little doubt that the sudden onset of pain and other symptoms was caused by a disturbance of the circulation. Pain, whether felt in the head or any other part of the body, might be referred to the same cause. He showed charts which enumerated the symptoms present in patients suffering from cerebral tumour, meningitis, migraine, epilepsy and other conditions, and he compared the symptoms of these diseases with those manifested by the members of the Anglo-American expedition to Pike's Peak in the year 1911. Those visitors to Pike's Peak who had ascended by train, showed in a marked degree cyanosis of the lips and cheeks and marked hyperpnea on exertion. Fainting and vomiting were also occasionally observed. One member of the expedition became so blue and faint that it was necessary to give him oxygen which at once restored his colour and vitality. Those who stayed for several hours complained of severe headache, which continued through into the night. In those who walked up the peak or rode on donkeys, the symptoms were more general and intense; the blueness was more marked and nausea, vomiting, headache and fainting were extremely common. The members of the Royal Society's physiological expedition to the Andes in 1921 also manifested headache, giddiness, lassitude, nausea, vomiting, cyanosis, dyspnea sometimes associated with periodic breathing and occasionally palpitation and precordial pain. An excellent account of the symptoms studied during both these expeditions was to be read in Meakins and Davies's "Respiratory Function in Disease."

Professor Mills pointed out that these symptoms which were expressive of mountain sickness, depended on the rarefaction of the atmosphere and therefore on a diminution in the atmospheric oxygen pressure. Of all these symptoms the one outstanding was headache. As the majority of the visitors had complained of headache, there could be no doubt that headache might be caused by oxygen want or as it is termed anoxemia.

Referring to this symptom in the course of other diseases, he pointed out that headache frequently occurred in patients suffering from pernicious anemia or from severe hemorrhage, and no other explanation of this symptom than anoxemia was possible in these conditions. Headache was also a common feature of infections. In any severe infection there occurred a great disturbance of the circulation, frequently heralded by a rigor, during which the surface temperature of the body might be very low, while the internal temperature was very high. It was a reasonable assumption that if a rigor were due to a gross interference with the general circulation, the accompanying headache also had its origin in the circulatory upheaval. Patients suffering from migraine complained sometimes of such symptoms as numbness of one half of the body, hemianopsia, slight degrees of motor aphasia, vomiting, vertigo and headache. The occurrence of all these symptoms was only explicable by the assumption of an extreme interference with the cerebral circulation, leading to anoxemia of various parts of the brain

and membranes. As certain parts of the brain only were subject to this disturbance, spasm of the blood vessels must be the cause. Although it had been maintained by some physiologists that vasomotor nerves were not present in the cerebral vessels or, if present, did not exert any influence on the tone of the vessels, clinical evidence strongly suggested that cerebral vascular spasm was no uncommon occurrence. He instanced the case of a man who suddenly became unable to speak, but after an interval of a few hours suddenly lost his aphasia and indulged in normal speech. He had mentioned this case to his friend, Professor J. T. Wilson, during a discussion on the causation of ephemerical hemiplegia, aphasia and hemianopsia, and had been struck by Professor Wilson's remark that the muscle fibres of the cerebral blood vessels must have some function to justify their existence.

The speaker then drew a parallel between the symptoms of migraine and those constituting the aura of epilepsy. He cited the case of a woman afflicted with migraine who in some attacks complained of headache on the right side and numbness over the left half of the body, and in other attacks of left-sided headache and right-sided numbness of the body; in still other attacks she had suffered from hemianopsia. Just as in those who ascended Pike's Peak, want of oxygen was the cause of symptoms, so also in migraine there was oxygen want induced by spasm of cerebral blood vessels. In certain cases of Jacksonian epilepsy in which trauma of the skull caused spicules of bone to penetrate the brain and its membranous coverings, it was often thought that the spicule of bone was the immediate cause of symptoms because removal of this spicule sometimes led to cessation of the epileptic convulsions. But it was invariably found that the membranes were injured by the spicule and became adherent to the brain substance. This pathological change caused disturbance of the cerebral and membranous circulation and was the cause of the convulsive attacks and the pain or headache of which the victims frequently complained. That mere removal of the spicule did not relieve the symptoms was proved by the fact that in certain instances the symptoms persisted after the operation. If, however, the membranes were free from the brain and the circulation restored, oxygen lack was thus overcome and symptoms at once disappeared.

Professor Mills then discussed the mechanism of localization of pain, pointing out that when any portion of the body was injured, impulses ascended from the site of injury along the sensory nerves, up the spinal cord, along the spino-thalamic tracts to the thalamus and thence by the thalamo-cortical tracts to the sensory cortex where they were interpreted as painful sensations. Another point which should not be forgotten was that the brain invariably referred the pain to the injured part. The lesion of trigeminal neuralgia was located in the Gasserian ganglion, but pain was referred to those parts of the periphery from which sensory impulses travelled along the fifth cranial nerve to the cells of the affected ganglion. The researches of Head and Campbell had allowed clinicians to explain on similar grounds the cause and distribution of the pain which was such a pronounced feature of *herpes zoster*. As *herpes zoster* was a clinical condition due to inflammation of the ganglia of the posterior roots, it was obvious that in this disease the inflammatory changes caused grave disturbance of the blood supply of the ganglionic nerve cells. There was no essential difference between the causation of the pain of these conditions and the causation of headache. The headache of cerebral tumour was frequently ascribed to increased intracranial tension, but to make way for a growing neoplasm within the brain some of the contents of the skull—blood and cerebro-spinal fluid—must have been expressed from the veins and venous sinuses and subarachnoid space. The blood volume was thus diminished and cerebral anæmia or anoxæmia produced. When headache was a prominent feature of cerebral tumour, it was not continuously present. Sometimes it was absent for hours or days. Hence the headache which accompanied cerebral tumour was not directly due to the tumour or to the increased intracranial pressure, but to more or less temporary circulatory disturbances produced by the tumour. Such disturbances led to obliteration of some

vessels, constriction of others and œdema of certain areas of the brain or meninges. Sometimes the anæmic areas and the œdema were far removed from the site of the tumour.

The headache of subdural hæmorrhage was also interesting from the standpoint of causation. Intracranial hæmorrhage might be intracerebral or subdural. A hæmorrhage into the brain was painless unless it caused oxygen want of the cells of the sensory cortex or of the thalamus. But the first and most characteristic symptom of subdural hæmorrhage was headache of great intensity. Professor Mills cited three examples to illustrate this point. The first was that of a man who, while attending a meeting, was suddenly seized with pain in the occipital region of the skull. When seen three days later, his pain was still intense and he was afraid to move his head. He manifested a certain amount of rigidity of the neck. There were no other symptoms except vomiting. Lumbar puncture was advised. A considerable amount of blood-stained cerebro-spinal fluid was removed and the patient made a complete recovery. The second patient had been under the care of Dr. S. A. Smith. He gave a history of sudden pain in the frontal region, gradually increasing in severity and disappearing as unconsciousness supervened. The suddenness of the onset and the severity of the pain marked this case as one of subdural hæmorrhage. *Post mortem* investigation confirmed the diagnosis. The third case was as suggestive as the other two, but, unfortunately, there was no means of verifying the diagnosis. That the brain substance was in its greatest part insensitive to painful stimuli was proved by the fact that the cerebral tissues might be ploughed up by an enormous hæmorrhage and yet no pain be felt by the patient. Again, large portions of brain substance protruding in a *hernia cerebri* could be lopped off with a knife without evoking any complaint. Pressure on the vessels of the dura, on the other hand, was an extremely common cause of pain in the head. The intense pain of meningitis was well known and needed no comment. Wherever there was inflammation there was gross disturbance of the circulation and this caused the meninges to originate painful stimuli. The situation of the headache in intracranial disease was highly important as an aid to localization of the injury. Just as in an injury to the toe which caused pain, the brain referred the pain to the site of the injury, so also in affections of the meninges (whether caused by meningitis, subdural hæmorrhage or cerebral tumour) the impulses from the part of the meninges affected were received by the sensory cortex and were referred back to the areas of irritation. But it should be borne in mind that a lesion of the cells of the sensory cortex or thalamus could give rise to pain, whether in the head or elsewhere, and the pain would be referred to those parts of the body which were in connexion with the affected cells.

Professor Mills finally claimed that sufficient evidence existed to justify the statement that the fundamental cause, not only of headache, but also of convulsions, vomiting, vertigo and tinnitus was anoxæmia. The object of his address was an attempt to assign one great cause to those symptoms which were common to so many disorders. Those symptoms could not have different causes in different diseases, but must owe their origin to one common fundamental mechanism.

DR. GARNET HAILORAN read a paper entitled: "Headache from the Oto-Rhino-Laryngological Point of View" (see page 779).

DR. A. W. CAMPBELL said that the subject was a very suitable one for discussion. He had little doubt that they had all suffered from headache. He had had probably half a dozen varieties himself and in fact was at the moment experiencing a certain sensation in the head after hearing the subject of headaches discussed. It was difficult to explain numbers of headaches met with. He was glad that Professor Mills had stated that all headaches started from an affection of the nerves of the *dura mater*; this had not been sufficiently recognized. The nerves were derived mainly from the trigeminal nerve, but also from the upper cervical and hypoglossal nerves.

Professor Mills would have them believe that the agent disturbing the function of these particular nerves was a

deprivation of oxygen and he put forward a good case. There were only two things in the brain which could operate as disturbing agents, the blood and the cerebro-spinal fluid, and they might act quantitatively or qualitatively. He had always thought that in migraine some disturbance of the cerebro-spinal fluid was at the root of the matter, either at the inlet of the cerebro-spinal fluid, the chorioid plexus, or at the outlet, the Pacchionian bodies, and that some imbalance resulted. Professor Mills had not mentioned the closed box of the head. An excess of either blood or cerebro-spinal fluid might produce an anoxæmia of the dural nerves merely by pressure. Another cause of headache, freely supported by the French, was a vasomotor disturbance. He had been interested to hear Professor Wilson's sage remark about the muscular fibres in the vessel walls. In some quarters the vasomotor origin of headache had been disputed on one ground mentioned by Professor Mills, namely, that intracranial vessels subjected to adrenalin did not respond in the same way as vessels in other parts of the body. In this connexion they might consider Leonard Hill's idea of intracranial pressure as a passive condition, different from that existing in other parts of the body; the closed box idea came in here.

They knew that all headaches, including those referred to by Dr. Halloran, did originate in an affection of the dural nerves. They did not know what it was that disturbed the function of the nerves. Professor Mills had set up his views as a cockshy for them and he had certainly made out a very good case. Dr. Campbell had to acknowledge that his cockshying would not produce much for him in the way of coconuts or cigars.

DR. R. ANGEL MONEY said that it would be superfluous to offer congratulations to the readers of the papers, particularly to Professor Mills, with whom he had had the privilege of being associated for many years and whose views he had often heard. Professor Mills had put his ideas before them in an excellent way. Dr. Money appreciated the grounds of his arguments, but wished to join issue with him over one point—the sensitivity of the membranes. He had recently had the opportunity of carrying out some observations under pure local infiltration anaesthesia during neuro-surgical operations. With 1% "Novocain" solution all that was necessary was to infiltrate the scalp and the periosteum. The remainder of the structures were insensitive. The dura could be cut and the vessels clipped and ligated and the dura could be stitched without the production of any sensation other than a feeling of pressure. The dura was evidently sensitive to certain forms of stimuli only, in the same way as the intestine. If a pull were exerted on the dura, or increased tension produced, there would be a deficient blood supply and the patient would experience acute pain, but the pain would not always be felt at the point of application of the tension. A patient had been operated on recently for a lesion beneath the occipital lobe; this had turned out to be a cerebellar cyst. While an attempt was being made to pull the occipital lobe forwards, blood vessels running to the lateral sinus had been exposed and when a pull was exerted on these vessels the patient had complained of acute pain over the eye on the opposite side. As soon as the vessels had been clipped off, the occipital lobe could be displaced without pain. If the dura were painful, it was painful only when a stimulus of increased tension was applied. There was a further argument in favour of the view that increased tension could cause acute headache and this was supplied by the experience gained in intermittent hydrocephalus. Headache occurred when there was an interference with the ordinary flow of the cerebro-spinal fluid. In a patient so affected intense headache had been present in the early hours of the morning. When the patient sat up and held his head forward, the headache had passed away, but when he lay down again it had returned. At operation a cyst had been discovered below the tentorium in such a situation that it could well be imagined as causing interference with the flow of cerebro-spinal fluid along the aqueduct of Sylvius or the fourth ventricle.

In regard to the cerebral vessels, some experimental work had recently been carried out on a cat. The cervical

sympathetic trunk on one side had been cut and a portion excised; on the other side a stimulus had been applied to the central end. The animal had then been killed and the amount of blood in the vessels estimated. It had been found that the blood was less in amount on the stimulated side than on that from which the ganglion had been excised. The conclusion was that a dilatation had occurred on one side or a contraction on the other side, or both.

In regard to Dr. Halloran's remarks about frontal fistulae or any other fistulae, Dr. Money said that a good deal of progress had been made by injecting a solution of sodium iodide into the fistula and taking an immediate skiagram. If the abscess were not draining properly, it would be necessary to undertake surgical measures at once. As far as ventriculograms were concerned, he thought it would be dangerous to perform ventriculography when acute abscess was suspected. If, however, there was but little increased intracranial tension and the walls of the abscess were thick, a ventriculogram would give useful information.

PROFESSOR C. G. LAMBIE said that he had been very interested in the views expressed by Professor Mills. A good case had been put forward to show that anoxæmia played an important rôle in the causation of some headaches. He thought that they should be cautious in accepting it as a universal cause of headache. Nevertheless, Professor Mills had done a service in pointing to anoxæmia as possibly the greatest common factor in certain groups of cases. However, there was another side to the question: economy of hypothesis was an excellent maxim, but Sir William of Occam's razor was a double-edged weapon and the dangerous side was the fallacy of false simplification where there were in reality many causes. While anoxæmia might heighten the sensitiveness of nervous tissue, there were other things which would do the same. There were certain reflex causes of headache where it was difficult to see what rôle anoxæmia played. Thus, when cold was applied to the naso-pharynx, a frontal headache was produced; this was analogous to the referred sensations of cold or of heat and pains produced in the chest on swallowing a very cold or very hot bolus. In both these cases structures of endodermal origin were stimulated and referred pain was produced. There was a better analogy between *angina pectoris* due to coronary thrombosis and those cases of headache associated with interference with the blood supply of the meninges. In both the stimulus came from structures of mesodermal origin and in both the pain experienced had a fairly accurate reference. But the meninges might be irritated in other ways than by having their blood supply interfered with. The curious thing about many common headaches, however, was that they were vague in their localization; they often arose from trivial causes, such as constipation, and, in spite of their intensity, there was a relative absence of associated phenomena, such as those met with in the more serious conditions mentioned by Professor Mills. In these circumstances it was not clear what part anoxæmia played, unless it was in connexion with vasomotor reflexes, and the rôle of toxæmia could not be ignored. There was a fair body of evidence regarding the vasomotor control of the cerebral vessels. Vasomotor nerves had been demonstrated in the vessels; the retinal vessels had been observed to contract in migraine and the retina was, after all, an outlying part of the central nervous system. Orr had shown that when india ink was injected after cutting the cervical sympathetic on one side, much more of the injected material lodged in the *hippocampus major* on that side than on the uncut side. There was less difficulty in accepting vascular spasm as a cause of migraine and possibly epilepsy. Professor Lambie concluded his remarks by saying that anoxæmia was an important cause of headache, but only one of many possible causes.

DR. R. S. GODSALL said that he was indebted to the readers of the papers. Ear, nose and throat surgeons often saw patients with headaches after the ophthalmologists who had dealt with them, could find no eye lesions. They could lay down no definite rule in regard to symptoms causing headaches. Gross antral and ethmoid suppuration might be present without headaches, and on the other

hand headaches would occur in the presence of only minor nasal lesions. There was another type of patient with a normal nose and yet the headaches might be cured by certain manipulations in the region of the septum. Women suffered from headaches more than men; but he did not think that they were more prone to anoxæmia. Changes in the vasomotor system of a reflex nature had to be considered as well as bacterial toxins from foci in the pelvis or other parts of the body. He thought that experimental investigation of the sympathetic nervous system would probably give an answer to the question.

DR. B. P. ANDERSON STUART referred to one aspect of Dr. Halloran's paper, that of radiological examination of the sinuses of the head. He thought that radiologists had not made sufficient progress in this type of examination. The technical work was poor and too many vague reports were made. For example, such reports as "right antrum opaque" were sent out. The rhinologist would probably know that already from his transillumination tests. Much more information could be given. The patient should be examined in both the erect and the prone position with the most painstaking technique. It would then be possible to determine whether the opacity was due to hyperplasia of the lining mucosa, polyposis, fibrosis *et cetera* and whether there was fluid present. He hoped that Dr. Halloran's paper would stimulate more interest in the radiology of the sinuses.

Professor Mills in reply said that he was sorry that there had not been more criticism of his remarks. In the first place he had been dealing with fundamental causes and did not include neuralgic conditions outside the skull. Even in frontal sinusitis the membranes lining the sinus might become hyperæmic and this would result in anoxæmia with resulting pain.

He agreed with Dr. Money that the conditions described by him on incision of the dura were on all fours with those seen on incising the bowel; he illustrated this by reference to the incision of the colon in a colostomy wound. He also described a personal experience after surgical operation and said that dragging on the omentum caused a feeling of intense pressure.

In conclusion Professor Mills said that he had advanced anoxæmia as the fundamental cause of headaches and until a better explanation was forthcoming he would continue to hold his views. He did not ask them necessarily to accept those views, but if he had made them think about the subject, he was satisfied.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Rex, Kenneth Edward, M.B., B.S., 1930 (Univ. Melbourne), 52, Clowes Street, South Yarra, S.E.1.

Rowlands, Eustace Alwynne, M.B., B.S., 1930 (Univ. Melbourne), 7, French Street, Launceston, Tasmania.

Medical Societies.

THE CLINICAL SOCIETY OF THE HOSPITAL FOR SICK CHILDREN.

A MEETING OF THE CLINICAL SOCIETY OF THE HOSPITAL FOR SICK CHILDREN was held at the Hospital for Sick Children, Brisbane, on March 27, 1930, DR. A. V. MEEHAN in the chair.

Myxosarcoma of the Orbit.

DR. E. O. MARKS showed a child with a myxosarcoma of the orbit. A small tumour had been removed a year before admission and a small amount of radium applied. Three months later it had recurred and radium had again been applied. In July, 1929, the child had been admitted

to the Hospital for Sick Children with a recurrence of the tumour and the eye much proptosed. The eye had been removed and radium again applied. So far there had been no recurrence. Sequestra were present in the orbit, but so far there was no sign of exfoliation and the epithelium was spreading inwards. The radium application had been under the control of Dr. V. McDowall. The dose of radium had been as follows:

On June 14, 1929, one milligramme needles had been used for seven days and fifteen milligramme tubes for three days, giving a total dose of 360 milligramme-hours. The distance was two centimetres.

On June 28, 1929, four five milligramme tubes had been used for three and three-quarter days, giving a total dose of 180 milligramme-hours. The distance was five centimetres.

On July 8, 1929, four five milligramme tubes had been used for eighteen hours, giving a total dose of 36 milligramme-hours. The distance was five centimetres.

Paralysis following Fracture.

DR. J. G. AVERY showed a male patient, aged seven years, who on October 5, 1929, had fractured the upper third of his right humerus. He had been treated with extension in a Thomas's arm splint for three weeks. At the end of that time it had been noticed that he had loss of power of dorsiflexion of the wrist and of the extensors of the fingers and loss of power of abduction of the thumb. The paralysis had continued, although he was treated in a cock-up splint for three months. He had had sores on his fingers which were at first thought to be trophic, but were later found not to be. The child now had stiffness of the elbow joint.

A skiagram taken of the elbow showed no change in the bones.

DR. A. V. MEEHAN said he thought the fracture was too high to produce injury to the nerve—it was well above the musculo-spiral groove.

Recurrent Fractures of the Radius and Ulna.

DR. AVERY also showed a female child with a greenstick fracture of both bones of the right forearm treated with splinting. The patient had done well and was discharged. Two months later there had been an exactly similar fracture and the patient had been five weeks in splints and again discharged. She had returned after three months with a third fracture. Nothing had been found in the child to suggest calcium deficiency, but she was put on cod liver oil, parathyroid extract and iodine.

DR. A. V. MEEHAN suggested using the method of damping with rubber motor tire material, as recommended in Jones's book. Dr. Meehan gave an instance from his own experience in which this had been helpful. He suggested that in Dr. Avery's case bandages might be applied both above and below the fracture, five centimetres (two inches) below the elbow and at the wrist. The rubber was pulled sufficiently tight to cause blueness of the limb, but not so tight as to check arterial circulation; this could be tolerated for almost a whole day.

Syphilis.

DR. AVERY's third patient was a child shown at a previous meeting with swelling of the wrist, which was thought to be syphilitic. Two weeks after the last meeting it had been noticed that the forefinger of the left hand was swollen, the swelling being mainly in the shaft of the bone. Also three toes had been swollen and the right knee was full of fluid. There had been no pain in fingers, toes or knee. There had been no enlargement of the glands or spleen. Movement in the wrist was freer, and the finger had improved a little, but not the toes.

The patient had been on antisyphilitic treatment since January 14, 1930, and was now having 0.15 gramme of "Kharsulphan" every week, daily mercurial inunctions and 0.48 gramme (eight grains) of iodide of potash three times a day. The Wassermann test gave a "++++" reaction.

DR. S. F. McDONALD said that if the condition were syphilitic, treatment would lead to improvement; if it

were not syphilitic, he thought nothing would do any good. The question of Still's disease arose, but he did not consider the condition due to this disease. There were no changes in the bone. The fact that some of the swellings had come on after treatment had been going on, did not at all alter the chance of the condition being syphilitic. He considered the only thing to do was to push the antisyphilitic treatment.

Obscure Abdominal Condition.

DR. H. MATHEWSON showed a patient, aged two years, who had been admitted on March 4, 1930, with a history of having never thrived and having a chronic cough. His weight on admission had been 7.2 kilograms (sixteen pounds); at the time of the meeting it was 7.3 kilograms (sixteen pounds four ounces).

On examination of his chest mucous moist sounds and rhonchi were heard scattered over the lungs. In the abdomen glands were palpable. An intradermal von Pirquet test gave no reaction. No reaction was obtained in the blood serum to the Wassermann test. X ray examination of lungs and of the alimentary tract with bismuth meals revealed no abnormality.

The blood picture showed the leucocytes to number 16,000 per cubic millimetre. The neutrophil cells were 51%, lymphocytes 43%, and eosinophil cells 6%. The erythrocytes numbered 4,440,000 per cubic millimetre, the hæmoglobin value was 87% and no abnormality of the erythrocytes was detected. His diet had been mainly carbohydrate, with egg and raw meat sandwiches and milk. He was very constipated, the bowels being opened only with enemata.

DR. S. F. McDONALD said there were three alternatives: Abdominal tuberculosis, Hodgkin's disease and chronic intestinal indigestion.

DR. ELLIS MURPHY spoke of the possibility of Van Jaesch's disease.

DR. F. LUKIN spoke of the treatment of abdominal tuberculosis.

Cardiac Lesion.

DR. SHIRLEY LANE showed a female patient, aged seven years, who had been seen on November 22, 1929. She had been knocked over by a bicycle four days previously. She had then complained for one day of pain in the epigastric region. She had vomited twice and had seemed a little feverish. There had been no headache. She had had a cough for thirty-six hours, but no sputum; the bowels had been constipated and there had been no urinary symptoms. The father had died of tuberculosis. The child had been admitted to hospital, as she looked very ill and there was a question of an internal hæmorrhage as the result of the accident. The question of operation had been raised, but had been deferred on account of the chest condition. Diminished movement had been present on the right side of the chest. Crepitations had been present at the right base, high pitched rhonchi had been heard at the apex and diminished breath sounds on the right side, back and front. There had been no rigidity in the abdomen, but slight tenderness in the right iliac fossa on deep pressure.

The child had been treated in hospital for some days and then discharged. She had been brought back with a swollen abdomen and headaches. The chest had been examined and dullness had been found in the right axilla, with absence of breath sounds in the right axilla and an area further over, where the breath sounds were exaggerated. On November 29 the child had been discharged with a note that she had apparently had an acute attack of pulmonary oedema.

On February 14, 1930, the child had been quite well till the day before, when she had complained of pains in the left side of the abdomen and a dry, hard cough. She had been constipated and had had frequency of micturition. On examination there had been decreased resonance in both lungs at the bases, diminished breath sounds on the right side and increased breath sounds on the left side, with occasional râles. The apex beat had not been displaced, but there had been increased cardiac dullness to

the right. The child had been admitted to hospital as having a slight patch of bronchopneumonia at the right base and tonsillitis.

On February 28, 1930, the child still tired easily. The abdomen had still been distended, there had been impaired resonance and breath sounds at the right base, and X ray examination gave inconclusive results.

On March 21, 1930, the child had had slight attacks of choreiform shivers.

DR. S. F. McDONALD had seen this child, and the first thing he had noticed was that the heart was displaced to the right, the apex beat being well inside the nipple line. He had also noted the alteration in the breath sounds at the right base with poor movement of the diaphragm on that side. The question of subphrenic abscess had arisen, but had been discarded.

The opinion of the meeting was that the child had had a heart lesion following the accident and would need care and supervision for some time to come.

Diabetes Mellitus.

DR. S. F. McDONALD showed a patient, aged eleven years, who had been seen at the previous meeting and whose father was a patient at the Brisbane Hospital with diabetes. The child had been having sixteen units of insulin three times a day. This dose had seemed large; sugar and a trace of acetone had still been present in the urine, though at times the sugar would disappear. One day the child had been found taking biscuits and carbohydrates from the lockers and the only thing to do was to keep him in bed.

On February 10, 1930, the resting blood sugar was 0.331 and on March 12, 1930, the fasting blood sugar was 0.241. After this restricting measures were begun. On March 14, 1930, he was having sixteen units of insulin three times a day. At 2 p.m. he was looking very dull, sweating and was not interested in anything; in half an hour the pupils had been dilated, the face flushed and profuse sweating had occurred. Three grammes of glucose had been given intravenously and he had recovered in about one minute, the colour improving. At 2 p.m. the blood sugar had been 0.058%. At 2.30 p.m. the blood sugar had been 0.131%.

One week before the meeting he had been put on to a basal diet and was having insulin two units three times a day. The fasting blood sugar was 0.221. The day before the meeting was visiting day, and the child's urine had again been loaded with sugar.

Bronchiectasis.

DR. McDONALD also showed a male, aged ten years, who gave a history that fourteen months previously he had had an attack of pneumonia. Since then he had had two attacks and chronic bronchitis.

The child always had his mouth open, the nose was broad, the nails were more coloured than they should be and the whole attitude and bearing was that of the bronchiectatic child. "Lipiodol" injection had been unsuccessful and unfortunately X ray examination of the chest was not satisfactory.

Right frontal dullness was present and slight dullness on the inner frontal area on the left side. There was fluid in the floor of the antra and a definite infection. There was practically no sputum.

DR. ELLIS MURPHY suggested that a chronic interstitial pneumonia had not quite cleared up, and he did not think the condition was yet definitely bronchiectatic. He suggested the use of potassium iodide and creosote and postural treatment.

DR. R. G. QUINN suggested the use of diathermy in this case.

Still's Disease.

DR. GAVIN CAMERON showed a female patient, aged ten years, who had been admitted on March 21, 1930. The history was indefinite owing to the fact that she was a State child and had been boarded out, being visited by the mother at more or less regular intervals. It appeared that for the past six months at least there had been a progressive involvement of various joints, resulting in

permanent enlargement of some joints and limitation of movement. The child had seemed to decline and had lost weight, the appetite was poor and she was stated by the mother to be in a much debilitated condition compared to what she was one year before.

The joints affected were the interphalangeal joints, the wrist joints, the elbow joints and the joints in the two upper cervical vertebrae.

On examination there was obvious thickening of the interphalangeal joints, giving the appearance of a spindle-shaped joint; there did not seem to be any pain or limitation of movement in these joints. The wrist joints did not show any obvious thickening, but there was limitation of dorsiflexion to some extent. The elbows showed some thickening and there was definite limitation of movement; the limb could not be fully extended at the joint, and any attempt to do this caused pain. There was inability to turn the head freely to the left, showing limitation of movement at the joint between the atlas and the axis. No other joints appeared to be obviously affected.

The heart showed nothing abnormal; there were no enlarged glands and the spleen was not palpable.

X ray examination of joints revealed no abnormality. There had been slight irregular fever. There was no history of gonorrhoeal infection. The Wassermann test yielded no reaction. Examination of the blood yielded the following information:

White cells, per cubic millimetre	9,400
Red cells, per cubic millimetre	4,000,000
Hæmoglobin value	80%
Colour index	0.9

There was nothing abnormal in the slide. Skiagrams of the antra were normal. The urine contained a few pus and red cells, a number of casts, granular and hyaline. Culture was sterile.

The tonsils were enlarged and septic. Some crepitus could be detected in the elbow joints at times.

Dr. Cameron said that here was a child apparently suffering from a progressive joint affection of insidious onset which left behind it some thickening of the affected joints and limitation of movement. The fever was slight and irregular and the X ray picture showed no bony damage. There were four possibilities: Tuberculous disease, syphilitic arthritis, gonorrhoeal arthritis and Still's disease. The first three could be excluded and this left Still's disease, which Dr. Cameron considered to be the diagnosis.

Dr. A. V. MEEHAN said it was a very serious condition; this disease generally progressed consistently in spite of all that could be done. He considered the condition to be early Still's disease and the prognosis was bad.

Dr. S. F. McDONALD considered Still's disease the most likely diagnosis and said the prognosis was most serious. He advised a rigorous search for septic foci and then thought a vaccine should be made from them and used. He suggested also the use of histamine and contramine and also diathermy.

THE MEDICAL BENEVOLENT ASSOCIATION OF NEW SOUTH WALES.

DR. E. S. LITTLEJOHN, the Honorary Treasurer of the Medical Benevolent Association of New South Wales, has asked that the following statement should be published.

All members of the profession should join the Medical Benevolent Association. It is surely the duty of all who can afford to do so, to subscribe the small sum of £1 1s. a year to help those who are less fortunate and are in need of help.

Furthermore, the Association is actually an insurance society, which insures its members who may meet with disaster from one cause or another, and their dependants, at least against actual want. Further than this, it assists widows to earn a living and to support and educate their children. No one knows what the future may bring, and let it be remembered that those members of the profession whose unfortunate dependants the Association is supporting today, would no doubt a few years ago have scouted

the idea of any such possibility. The annual subscription is £1 1s. and that for life membership £10 10s.

Intending members should apply to the Honorary Secretary, The Medical Benevolent Association of New South Wales, British Medical Association House, 135, Macquarie Street, Sydney.

Special Correspondence.

LONDON LETTER.

BY OUR SPECIAL CORRESPONDENT.

Women's Work in Medicine.

WHEN, some years ago, most of the big teaching hospitals, not only in London, but also in the provinces, Scotland and Ireland, admitted women medical students on the same terms as the men students, it was, perhaps not unnaturally, presumed that honorary staff appointments and resident posts in hospitals would also soon be open to women. Not only has this not happened, however, but most of the hospitals have now entirely withdrawn any privileges granted to women, whether as undergraduates or post-graduates, and it is becoming increasingly difficult for women medical practitioners to obtain post-graduate instruction or resident posts in hospitals. It is therefore of interest to know that there are hospitals, both general and special, that are purely "women-run." In Great Britain there are five general hospitals (two in London) and eight special hospitals (two in London), containing some 928 beds all told and requiring the services of 172 medical women.

The newest of the "women-run" hospitals in England is the Marie Curie Hospital for Cancer and Allied Diseases, which was opened in London by Mr. Stanley Baldwin on July 10. This Hospital was founded by the Cancer Research Committee of the Medical Women's Federation as a centre for the treatment by radium of women suffering from cancer and allied diseases, and it is staffed entirely by medical women. At present there are only thirty beds, but it is hoped eventually to increase this number to fifty. As a point of interest it may be mentioned that the architect responsible for the adaptation and alteration of the house is also a woman.

This work by women for women was originally begun some years ago and was carried on between four women's general hospitals, the radium (to the value of £12,000) being transported from one hospital to another as required. The new Marie Curie Hospital is now the central point for this work, and is in a sense an annexe to the four general hospitals.

Mr. Baldwin made a delightfully appropriate speech, in the course of which he referred to the work of women extending back from the present day to Joan of Arc and even to Eve. He added that Eve had been made to bear the sins of all the world because Adam was not man enough to own up; in fact, if Eve was the first woman, Adam undoubtedly was the first cad!

In India the work of medical women has even greater scope. The Women's Medical Service was founded in 1914. It is organized by the Countess of Dufferin's Fund and receives a subsidy from the Government of India. The women of India are especially catered for by the medical missionaries, of whom there are at present 155 working in some 96 hospitals and 43 independent dispensaries. There is little doubt that this type of work requires a real "vocation" and the amazing faith with which these medical women missionaries undertake their arduous task without thought for any reward, may be instanced by the following case.

A woman doctor, feeling she had a definite "call" to work among the uncared for women of India, threw up a permanent and well paid job as a medical officer of health in an English provincial town and, accompanied by a friend who had had a little experience of Indian life, journeyed to a little known and neglected area in

India to devote her life to medical work among the women there. She had sufficient money to pay her passage, to procure the most necessary instruments of her profession and keep her for a very short while after her arrival. The women among whom she proposed to work were of the very poorest and the only hope of obtaining sufficient income upon which to live, was from the few white people who might be in the district. When asked how she intended to manage if things went wrong or if she herself were visited by illness, she replied, with the sublime and unquestioning faith which can move mountains, that "if the work were necessary, the capacity and the means would be forthcoming." That her faith was not unjustified is shown by the following incident which occurred before she left England. On leaving her post she had very little time in which to make her final preparations, among which she was anxious to include a course of general post-graduate instruction. The only suitable course taking place during the short period before she sailed was to be held at a hospital which had closed its doors to women. It was suggested that she might lay her case before the dean of the hospital, though the hope of her being admitted was very small. Undaunted by pessimistic friends, she wrote her letter and by return of post received a favourable reply. It is not quite a year since she left these shores and her subsequent history is as yet unknown.

Australia has its "women-run" hospitals, and in Yugoslavia a women's hospital of 86 beds was recently opened in Belgrade.

Correspondence.

TRANSPLANTATION OF URETERS.

SIR: Dr. R. C. Coffey, Lovejoy Street, Portland, Oregon, United States of America, who is the leading authority in the world on the transplantation of the ureters into the large intestine, has written to me to ask if I would be good enough to put him into communication with any Australian surgeon who has had experience in this class of work. Perhaps you would kindly permit me through your columns to make Dr. Coffey's request known.

Yours, etc.,

RALPH WORRALL.

Macquarie Street, Sydney.
Undated.

NEW SOUTH WALES RAILWAY WORKERS AND THE COMPENSATION ACT.

SIR: It has been my experience and that of some of my colleagues in dealing with cases of railway workers under the *Workers' Compensation Act, 1926-1929*, New South Wales, to receive from the New South Wales Government Railway authorities a communication to the effect that as the injured worker had not given official notice that he was receiving treatment from a private practitioner in accordance with Clause 10, Part 6, of the Act, the Railways refused to pay for treatment, the cost of which the doctor would have to recover from the patient himself. Medical practitioners should warn patients to attend to this simple matter.

I have also been shown a letter received by an injured railway employee under my care, from his superior officer, to this effect:

Dear Sir,

Please note that it will be necessary for you to report to a public hospital to be examined and to have the enclosed medical certificate completed by the doctor who attends you, before you can be seen by the Railway Medical Officer

There is no clause in the Act compelling a railway worker to attend a public hospital for attention to an

injury within the scope of benefits under the Act. Like any other civilian in New South Wales coming under the Act, the railway employee may, if he choose, seek attention from any legally qualified medical practitioner in private practice whose legitimate fees within the specified limits must be paid by the Railways.

Yours, etc.,

"SUBURBAN DOCTOR."

November 11, 1930.

LEPROSY.

SIR: The article on leprosy by Sir Leonard Rogers in your issue of October 18, 1930, brings to my mind the chance observation of a patient of mine regarding a friend who had contracted leprosy. This friend in the Northern Territory was mauled by a crocodile and later developed leprosy in the neighbourhood of the tooth marks. As leprosy is seen mostly in foreign countries where these saurians exist, it might or might not reward investigation to arrive at whether the flora of the mouth of the crocodile does not contain, as a natural carrier state, leprosy bacilli. If so, streams infested by them might be polluted. A long shot, but no longer than finding the domestic cow a carrier of tubercle.

Yours, etc.,

"PHYSICIAN."

November 11, 1930.

EMPHYSEMA FOLLOWING TONSILLECTOMY.

SIR: Your mention of the lack of reports in *THE MEDICAL JOURNAL OF AUSTRALIA* of November 15, 1930, of emphysema following tonsillectomy recalls to my mind a case which occurred in my practice.

Miss D.R., female, aged thirty-eight, was operated upon by me on November 28, 1925, having enucleation of the tonsils by dissection. Intratracheal anaesthesia was given by a skilled anaesthetist and the catheter was passed quite easily. The patient became cyanosed in the induction prior to the passage of the catheter, and during the operation reacted to ether much more than a normal individual. The tonsils shelled out and no ligatures were necessary.

Emphysema of the subcutaneous tissues was noticed after the operation, extending from the jaw down the neck to below the clavicle on the left side. This took nine days to completely subside, but affected in no way the convalescence.

Yours, etc.,

RICHARD FRANCIS,
M.B., Ch.M. (Sydney), F.C.S.A.

135, Macquarie Street,
Sydney.

November 20, 1930.

THE STORY OF A SURGEON.

SIR: A fortnight ago, when I received from the library "The Story of a Surgeon," by Sir John Bland-Sutton, I regarded it doubtfully, as it had been unfavourably reviewed in *THE MEDICAL JOURNAL OF AUSTRALIA* on October 18, 1930, where your reviewer described it as "a rambling tale of no consequence" and rebuked the distinguished author for calling kinsmen "relations" instead of "relatives."

I was pleasantly surprised to find it charming, interesting, instructive and, except where the author descends to doggerel verse, well written. It is an illuminating, if slight, autobiography. It may be addressed to the general

reader—he certainly should enjoy it—but it should appeal still more to the profession. If it please a physician it should enthral a surgeon.

Yours, etc.,

GUY GRIFFITHS.

131, Macquarie Street, Sydney.
December 6, 1930.

Books Received.

- GUIDE TO STUDY OF HISTOLOGY AND MICROSCOPIC ANATOMY FOR THE USE OF STUDENTS IN MEDICAL SCHOOLS AND COLLEGES**, by Avery E. Lambert, Ph.D.; 1930. Philadelphia: P. Blakiston's Son and Company. Royal 8vo., pp. 272, with 152 illustrations. Price: \$3.00 net.
- HUMAN PHYSIOLOGY**, by F. R. Winton, M.D., and L. E. Bayliss, Ph.D., with a Chapter on The Physiology of the Sense Organs, by R. J. Lythgoe, M.D., and a Foreword by C. Lovatt Evans, D.Sc., F.R.C.P., F.R.S.; 1930. London: J. and A. Churchill. Royal 8vo., pp. 598, with 227 illustrations. Price: 15s. net.
- SURGICAL NURSING AND THE PRINCIPLES OF SURGERY FOR NURSES**, by Russell Howard, C.B.E., M.S., F.R.C.S.; Sixth Edition; 1930. London: Edward Arnold and Company. Crown 8vo., pp. 352, with illustrations. Price: 7s. 6d. net.
- THE BASIS OF EPILEPSY**, by Edward A. Tracy, M.D.; 1930. Boston: Richard G. Badger (The Gorham Press). Demy 8vo., pp. 92, with illustrations.
- THE ORIGIN OF THE HUMAN SKELETON, AN INTRODUCTION TO HUMAN OSTEOLOGY**, by R. Broom, D.Sc., F.R.S.; 1930. London: H. F. and G. Witherby. Demy 8vo., pp. 164, with illustrations. Price: 10s. 6d. net.
- THE OFFICIAL HISTORY OF THE AUSTRALIAN ARMY MEDICAL SERVICES IN THE WAR OF 1914-1918; Volume I**; 1930. Melbourne: Australian War Memorial. Demy 8vo., pp. 884, with 228 illustrations, maps and graphs.
- THE UNKNOWN SELF, A NEW PSYCHOLOGICAL APPROACH TO THE PROBLEMS OF LIFE, WITH SPECIAL REFERENCE TO DISEASE**, by Georg Groddeck, M.D.; 1930. London: The C. W. Daniel Company. Crown 8vo., pp. 207. Price: 7s. 6d. net.
- EMERGENCY SURGERY**, by Hamilton Bailey, F.R.C.S.; Volume I: Abdomen and Pelvis; 1930. Bristol: John Wright and Sons Limited. Royal 8vo., pp. 398, with 324 illustrations, some of which are in colour. Price: 25s. net.
- ENZYMES**, by J. B. S. Haldane; 1930. London: Longmans, Green and Company. Royal 8vo., pp. 244, with diagrams. Price: 14s. net.
- AIDS TO HISTOLOGY**, by A. Goodall, M.D., F.R.C.P.; Third Edition; 1930. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. 156, with illustrations. Price: 3s. 6d. net.
- AIDS TO BACTERIOLOGY**, by W. Partridge, F.I.C.; Fifth Edition; 1930. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. 318. Price: 5s. net.
- THE CLINICAL INTERPRETATION OF AIDS TO DIAGNOSIS; Volume I**; 1930. London: The Lancet Limited. Demy 8vo., pp. 388, with illustrations. Price: 10s. 6d. net.
- EPIDEMIOLOGICAL ESSAYS**, by F. G. Crookshank, M.D., F.R.C.P.; 1930. London: Kegan Paul, Trench, Trubner and Company Limited. Demy 8vo., pp. 146. Price: 7s. 6d. net.

Diary for the Month.

- DEC. 16.—New South Wales Branch, B.M.A.: Medical Politics Committee.
DEC. 19.—Queensland Branch, B.M.A.: Council.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvi.

- CHILDREN'S HOSPITAL, INCORPORATED, PERTH, WESTERN AUSTRALIA:** Junior Resident Medical Officers.
ROCKHAMPTON HOSPITALS BOARD, QUEENSLAND: Resident Medical Officer.
THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY, NEW SOUTH WALES: Honorary Ophthalmic Surgeon, Junior Resident Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmalm United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phoenix Mutual Provident Society.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	Members desiring to accept appointment in ANY COUNTRY HOSPITAL, are advised to submit a copy of their agreement to the Council before signing, in their own interests. Brisbane Associated Friendly Societies' Medical Institute. Mount Isa Hospital. Mount Isa Mines.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in Western Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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